

INSTALLATION AND OPERATING MANUAL **EN**

# *NETYS RT*

5000 - 7000 - 9000 - 11000 VA



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This Safety Information is to be retained for future reference.



Reference security information is in English.



For other languages please contact Socomec or local distributor.



The manufacturer will not be held liable for failure to follow the instructions in this manual which is also available at [www.socomec.com](http://www.socomec.com)

# WARRANTY CERTIFICATE AND CONDITIONS

This Socomec appliance is guaranteed against manufacturing and material defects for a period of 12 months from the date of purchase (local warranty conditions are applicable in addition to the general conditions). This warranty certificate should NOT be e-mailed, but kept by the customer along with proof of purchase, for use in the event of a claim being made for repairs or replacement under warranty.

The warranty period commences on the date the new product was purchased by the end user at an authorised showroom (reference details are shown on the receipt).

Return-to-base warranty is provided: components and labour for repairs supplied free of charge, any products to be replaced must be returned to Socomec or authorised service centres, at the customer's own risk and expense.

The warranty is recognized within national territory. If the UPS is exported out of national territory, the warranty shall be limited to the cover of the parts used to repair the defect.

To claim service under the warranty please observe the following:

- The product must be returned in the original packing. Any damage caused during shipping in packaging other than the original will not be covered by the warranty;
- The product must be accompanied by proof of purchase such as an invoice or receipt indicating the date of purchase and product ID information (model, serial number). The sender must also attach the reference number issued to authorize the return of the product, together with a detailed description of the defect. If any of this information is missing the warranty will be invalid. The authorisation number is issued by service centres over the telephone on receiving information on the defect in question;
- If it is not possible to provide proof of purchase the serial number and date of manufacture will be used to calculate the probable expiry date of the warranty; this could result in a reduction of the original warranty period.

The warranty on the product does not cover damage caused by carelessness (improper use: wrong input power, explosions, excessive humidity, temperature, poor ventilation, etc.), tampering or any unauthorised repair work.

During the warranty period, Socomec reserves the right to decide whether the product should be repaired, or whether to replace defective parts with new parts, or used parts that are equivalent to new parts in terms of functionality and performance.

In the case of batteries, the warranty is valid only if the battery has been recharged regularly in accordance with the manufacturer's instructions. On purchasing the product it is advisable to check that the next recharge date indicated on the packaging has not expired.

## VRLA Battery

- Batteries are treated as consumable parts and the warranty only covers manufacturing defects.
- Batteries must be stored in compliance with the supplier's recommendations.
- The warranty is valid only if the battery has been recharged regularly in accordance with the manufacturer's instructions. On purchasing the product it is advisable to check that the next recharge date indicated on the packaging has not expired.

## Lithium-Ion Battery

The vendor warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship within the warranty period. If the product has any defect within the warranty period, the vendor will repair or replace the product at its sole discretion according to the defect.

This warranty does not apply to normal wear or to damage resulting from improper installation, operation, usage, maintenance or irresistible force (i.e. war, fire, natural disaster, etc.), and this warranty also expressly excludes all incidental and consequential damages.

Maintenance service for a fee is provided for any damage out of the warranty period. If any maintenance is required, please directly contact SOCOMEC or the vendor.



Prior to use, the end user should take care to determine whether the environment and the load characteristic are suitable, adequate or safe for the installation and the usage of this product. The User Manual must be carefully followed. The vendor makes no representation or warranty as to the suitability or fitness of this product for any specific application.

## Options

A 12-month return-to-base warranty is provided on options.

## Software products

Software products are guaranteed for 90 days. The software is guaranteed to work as indicated in the manual accompanying the product. Hardware media or accessories (e.g. diskettes, cables, etc.) used with appliances are guaranteed free of material or manufacturing defects under normal conditions of use for a period of 12 months from the date of purchase.

Socomec will not be responsible for damages (including loss of income, interruption of business activity, loss of information or other financial losses, of any nature) arising from the use of the product.

These conditions are subject to Italian law. Disputes shall come under the jurisdiction of Court of Vicenza.

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This document is not a specification. Socomec reserves the right to make any changes to data without prior notice.

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# 1. SAFETY STANDARDS

## 1.1. Important

This manual should be kept in a safe place near the UPS, so it can be consulted by the operator at any time for information that may be needed regarding correct use of the unit. Read the manual carefully before connecting the unit to the a.c. mains supply and the downstream appliances. Before the UPS is put into commission the user should be completely familiar with its operation, the position of all the controls and the technical and functional characteristics of the unit, so as to ensure there will be no risk to people or the appliance itself.



This is a product for commercial and industrial applications in an industrial environment – installation restrictions or additional measures may be needed to prevent electro-magnetic interferences.

- The product you have chosen is designed for commercial and industrial use only. In order to be used for particular “critical applications” such as life support systems, medical applications, commercial transportation, nuclear facilities or any other application or systems where product failure is likely to cause substantial damage or harm to persons or property, the products might require compliance with statutory regulations and standards, specific local by-laws and be adapted accordingly. For such uses we would advise you to contact Socomec beforehand to confirm the ability of these products to meet the requested level of safety, performance, reliability and compliance with applicable laws, regulations and specifications.
- Use the UPS in accordance with the technical specifications indicated in this manual.
- The electrical installation must be entrusted **EXCLUSIVELY** to a skilled engineer, following exactly the instructions provided.
- The UPS houses a source of electrical energy, namely its batteries. The output of the UPS may be under power even when the appliance is not connected to the a.c. mains supply.

### Installation Warnings

- Before installation and usage, please read this User Manual thoroughly. This helps you to use the product correctly and safely.
- Install the UPS in a well-ventilated area, away from excess moisture, heat, dust, flammable gas or explosives.
- To avoid fire accidents and electric shock, please install the UPS in a temperature and humidity-controlled indoor area free of conductive contaminants. For the temperature and humidity specifications, please refer to *Appendix 1: Technical Specifications*.
- Leave adequate space (at least 50cm) around all sides of the UPS for proper ventilation.

## Connection Warnings

- Before being started up, the unit must be equipotentially bonded, in accordance with current safety regulations. The earth wire of the UPS must then be connected to an efficient earth system.
- If the earth connection is not made, the appliances connected to the UPS will not be equipotentially bonded. In this situation, the manufacturer declines all liability for any damage or accidents that could derive from failure to observe the requirements.
- The UPS must be well grounded due to a possible risk of current leakage current greater than 3.5mA
- The installation of upstream and downstream protective devices is highly recommended when the UPS is connected to the mains and the loads.
- The protective devices connected to the UPS must be installed near the UPS and must be easily accessible for operation.
- If you need to move the UPS or perform re-wiring, please turn off the AC input power and ensure that the UPS has been safely shutdown. Otherwise, the output end might still be energized and cause electric shock.
- Avoid connecting the output neutral to earth. The UPS does not alter the function of the mains neutral in any way; if the neutral needs to be modified downstream of the UPS, an isolation transformer must be used.
- In the event that the equipment has no automatic backfeed protection contactor device, make certain that:
  - the user/installer attaches warning labels to all mains isolating switches located remotely from the area where the UPS is sited, in order to inform service personnel that the circuit is connected to a UPS.
  - an external isolating device is installed, as indicated in figure 7.2.

## Usage Warnings

- This is a class-A product. In a domestic environment, this product may cause radio interference, in which case, the user is required to take adequate measures.
- The UPS can be used to power computers and associated peripheral devices, such as monitors, modems, cartridge tape drives, external hard drives, etc.
- It is strictly forbidden to connect the UPS with:
  - Any regenerative loads.
  - Any asymmetrical loads.
- To ensure reliable operation of the UPS and to protect the UPS from overheating, the slits and openings in the UPS must not be blocked or covered.
- Before usage, you must allow the UPS to adjust to room temperature for at least one hour to avoid moisture condensing inside the UPS.
- Do not pour and splash any liquid on the UPS. Do not insert any object into the slits and openings of the UPS. Do not put beverage containers on or around the UPS.

- When an emergency occurs, (1) press and hold the ON/ OFF button (🔌) for 3 seconds, (2) release it after you hear one beep, (3) use the Scrolling Up or Down button (⬆️ / ⬇️) to select 'Yes', and (4) press the Enter button (↵) to confirm your selection to turn off the UPS. After that, cut off the input power to completely shut down the UPS.
- Do not use any cleaning liquid or cleaning spray to clean the UPS. Before cleaning, please make sure that the UPS has been completely shut down, that the input power to the UPS has been cut off, and the batteries have been disconnected.
- All maintenance services must be performed by qualified service personnel or by authorised service engineers. The UPS generates high internal voltages that could be hazardous for a maintenance operative not in possession of the appropriate skills and training for this type of work.
- Forbid opening or removing the cover of the UPS yourself to avoid high voltage electric shock.
- You must contact qualified service personnel if either of the following events occurs:
  - Liquid is poured or splashed on the UPS.
  - The UPS does not run normally after having carefully followed the instructions given in this User Manual.

## Battery Warnings

- Keep the batteries away from heat sources. Do not open or damage the batteries.
- Do not dispose of batteries in a fire. The batteries may explode.
- The released electrolyte is harmful to the skin and eyes and may be toxic.
- A battery can present a risk of electric shock and high short-circuit current.
- Servicing of batteries and battery packs must be performed or supervised by qualified service personnel who are familiar with batteries, battery packs and the required precautions. Keep unauthorized personnel away from batteries and battery packs.
- The risk of electric shock and short-circuit current is possible when the batteries are connected to the UPS. Before maintenance, disconnect all batteries to cut off the battery power.
- For battery replacement, only use the same number and type of batteries.
- There is a danger of explosion if the batteries are replaced with others of the wrong type.
- Replaced batteries must be disposed of at authorised waste disposal centres.
- Never force, break or attempt to open the batteries. These batteries are sealed, maintenance-free components containing substances that are harmful to health and a source of environmental pollution. If liquid can be seen leaking from the battery, or a white powdery residue is noticeable, do not switch the UPS on.

- Observe the following before replacing the batteries:
  - Remove watches, rings, or other metal objects.
  - Use tools with insulated handles.
  - Wear rubber gloves and boots.
  - Do not lay tools or metal parts on the top of batteries.
  - Disconnect charging source prior to connecting or disconnecting battery terminals.
  - Remove battery grounds during installation and maintenance to reduce likelihood of shock. Remove the connection from ground if any part of the battery is determined to be grounded.
- Do not connect the batteries in reverse; otherwise, a risk of electric shock or fire accidents might occur.
- The batteries might lose their power during shipment or storage. Before you use the UPS for the first time, please fully charge the batteries until the battery capacity percentage shown on the LCD of the UPS is 100% (). If the UPS needs to be stored for an extended period of time, please charge the batteries every three months and ensure that, every time after charging, the battery capacity percentage shown on the LCD of the UPS is 100% (.
- The external slits and openings in the battery pack are provided for ventilation. To ensure reliable operation of the battery pack and to protect the battery pack from overheating, these slits and openings must not be blocked or covered. Do not insert any object into the slits and openings that may hinder ventilation.
- Do not allow liquid or any foreign object to enter the battery pack.
- Do not place beverages or any other liquid-containing vessels on or near the battery pack.



The risk of electric shock and short-circuit current is possible when the batteries are still connected to the UPS even though the UPS is disconnected from the mains. Do not forget to cut off the battery source before maintenance.



When the UPS is connected to external battery packs, the installation of appropriate protective devices, such as a DC fuse or a DC non-fuse breaker, is required.



Do not dispose of electrical appliances as unsorted municipal waste and make sure to use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, which can damage health and well-being. When replacing old appliances with new ones, the retailer is legally obliged to take back your old appliance for disposal at least for free of charge.

## 1.2. Description of the symbols used on the labels applied to the unit

All the precautions and the warnings on the labels and plates on the inside and outside of the equipment should be respected.



DANGER! HIGH VOLTAGE (BLACK/YELLOW)



GROUND TERMINAL



READ THE USER MANUAL BEFORE USING THE UNIT

## 1.3. Storage and installation

### Prior to installation

If the UPS needs to be stored prior to installation, it should be placed in a dry and well-ventilated area. The allowable storage temperature is between -15°C and +50°C (5°F~122°F).

### After usage

(1) Press and hold the ON/OFF button () for 3 seconds, (2) release it after you hear one beep, (3) use the Scrolling Up or Down button ( / ) to select 'Yes', and (4) press the Enter button () to confirm your selection to turn off the UPS. Make sure the UPS has shutdown, disconnect the UPS from the utility AC power, remove all loads/ equipment from the UPS, and store the UPS in a dry and well-ventilated area at a temperature between -15°C and +50°C (5°F~122°F).

Idle batteries must be recharged fully approximately every three months if the UPS needs to be stored for an extended period of time. Ensure that, every time after charging, the battery capacity percentage shown on the LCD on the UPS is 100% (.

## 1.4. Installation

Consult the following check list when installing the UPS:

- NETYS RT units are designed for use in enclosed environments.
- Position the UPS on a flat and stable surface in a properly ventilated room, well away from heat sources and avoiding direct exposure to sunlight.
- Ambient temperature should be maintained between 0 °C and 40 °C, and relative humidity below 90% (without condensation); the optimum temperature in terms of maximizing battery life is 15-20 °C.
- Check that the UPS will not be installed in a dust-laden environment.
- Take care not to stand the UPS or any other heavy object on cables.
- Check that the operating voltage and frequency settings are correct for the mains power supply at the installation site. Details for the UPS will be found on the data plate affixed to the top panel.
- For RS232 serial connection, use only the cables and accessories supplied or specified by the manufacturer.



**PRECAUTIONS IN THE EVENT OF DAMAGE  
DO NOT TURN THE BATTERIES UPSIDE DOWN.**

Packing materials that have been broken, punctured or torn in such a way as to reveal the contents must be kept separate in a secure area, and inspected by suitably qualified staff. Any packing considered unsuitable for shipment of the contents must be set aside immediately and kept secure, and the sender or recipient contacted.



After storage and before start-up of the UPS, you must allow the UPS to adjust to room temperature (20°C~25°C or 68°F~77°F) for at least one hour to avoid moisture condensing inside the UPS.

## 1.5. Electrical requirements

The installation and the system must comply with applicable national statutory regulations. The fixed power distribution unit must include protection and isolation for the utility supply and the back-up supply. In the event that a residual current device is installed on the UPS input line (optional), this must be located upstream of the power distribution unit.

The following table indicates the sizing of input protection devices that will ensure correct installation.



Use type A two-pole selective (S) RCDs Any leakage currents at the loads will be added to that of the UPS, so that current peaks can occur during transients (loss and restoration of mains supply), although these will be of very short duration. Where loads generate high leakage current, make certain the rating of the RCD is suitably matched. In any event, always conduct a preliminary test for current leakage to earth. When connecting the UPS to the mains and the load, it is highly recommended that protective devices are installed. The protective devices must use approved components that meet safety standards.

Electrical requirements			
UPS	Thermal-magnetic switch on input	Recommended selective RCD on input	Minimum cable section
7 kVA	40 D	0,1 A type A	8 mm <sup>2</sup>
11 kVA	63 D	0,1 A type A	10 mm <sup>2</sup>



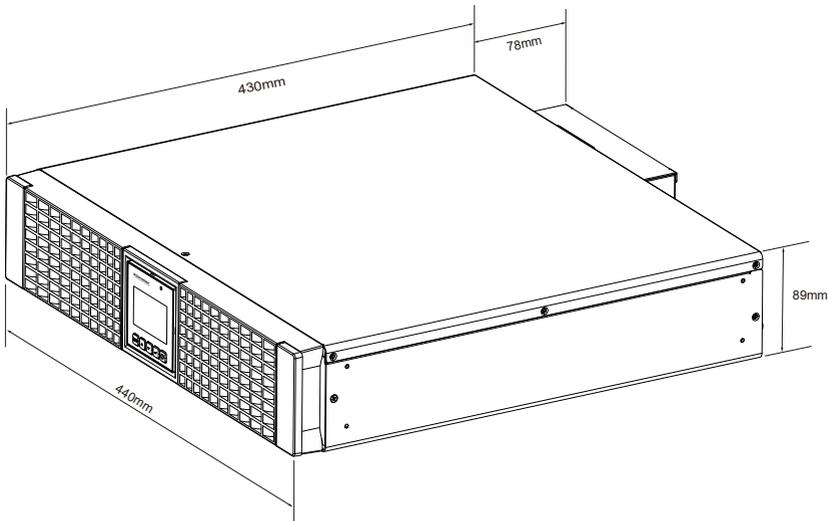
Always refer to local wiring regulations for correct cable sizes and protective device ratings depending on the installation environment.

## 2. INTRODUCTION

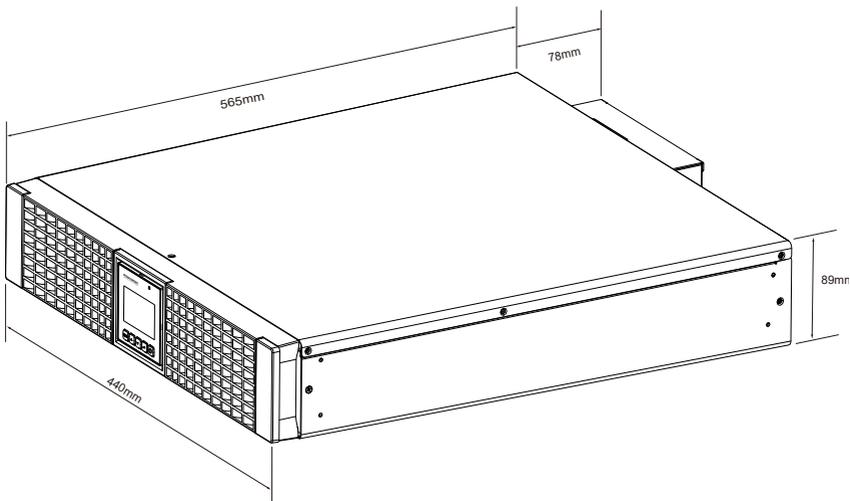
### 2.1. General Overview

The NETYS RT series UPS is a single-phase input, single-phase output on-line uninterruptible power supply which provides reliable and consistent sine-wave quality power to your electronic equipment. It uses the latest technology and the highest quality components, and its efficiency in on-line mode can reach up to 95.5%. The UPS not only provides safe, reliable and uninterruptible power to your sensitive electronic equipment at all times, but also produces greater electronic power efficiency at less cost. There are four different ratings, 5kVA, 7kVA, 9kVA and 11kVA, for your selection.

### 2.2. Exterior & Dimensions



(Figure 2-1: Model 5 / 7 KVA Exterior & Dimensions)



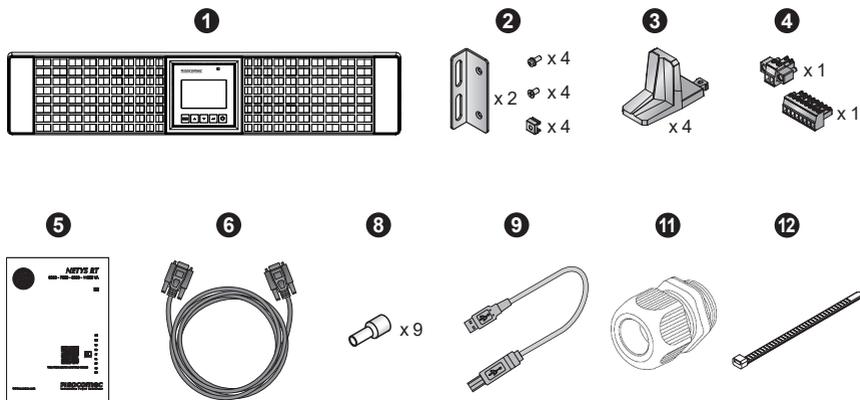
(Figure 2-2: Model 9/ 11 KVA Exterior & Dimensions)

### 2.3. Package list for UPS

The package contains the following items. Please check if any item is missing. If there is anything missing, please contact the vendor immediately.

#### Models:

NRT3-U5000 & NRT3-U5000C & NRT3-U7000 & NRT3-U7000C & NRT3-U7000CLA & NRT3-U7000CLAC & NRT3-U9000 & NRT3-U9000C & NRT3-U11000 & NRT3-U11000C & NRT3-U11000CLA & NRT3-U11000CLAC



No.	Item	5 / 7 / 9 / 11 kVA
①	UPS	1 PC
②	Bracket Ear for UPS	1 SET
③	Tower Stand	4 PCS
④	Pluggable Terminal	2 PCS
⑤	User Manual	1 PC
⑥	Parallel Cable	1 PC
⑧	Cord End Terminal	9 PCS
⑨	USB Cable	1 PC
⑪	Cable Gland	3 PCS
⑫	Cable Tie	6 PCS



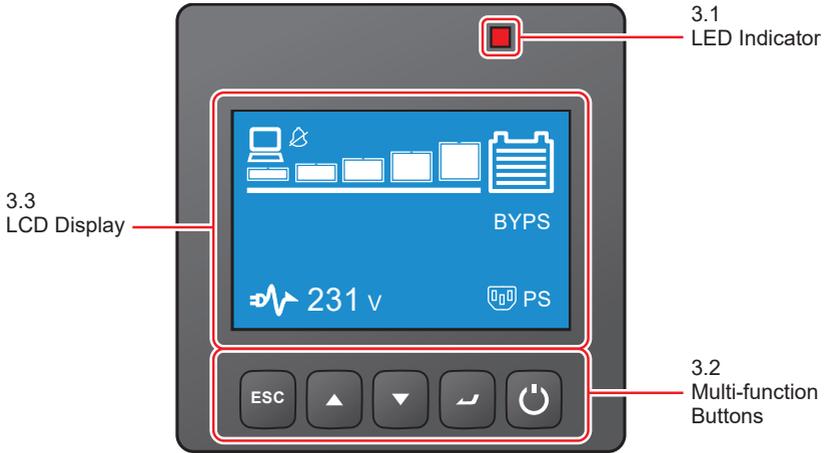
If there is any damage or anything missing, please immediately contact the vendor from whom you purchased the unit.



If the UPS needs to be returned, carefully repack the UPS and all of the accessories using the original packing material that came with the unit.

### 3. OPERATION PANEL

On the front panel of the UPS, you'll see one LED indicators, a LCD display, and multi-function buttons.



(Figure 3-1: Operation Panel)

#### 3.1. LED Indicators

No.	LED	Description
1		<ul style="list-style-type: none"><li>• Green - Normal operation.</li><li>• Yellow- Alarm</li><li>• Red - Load not supplied</li></ul> <p>Please check the corresponding warning message(s) in Chapter 11: Troubleshooting.</p>

## 3.2. Multi-function Buttons

No.	Multi-function Button	Description
1	 <p>ON/ OFF Button</p>	<p>The button has multiple functions. Please refer to the following for detailed information.</p> <p>1. Turn-on In standby/ bypass mode, press and hold the button for 3 seconds, release it after you hear one beep and the UPS will run in on-line mode. Cold start: When there is no AC input, press and hold the button for 3 seconds, release it after you hear one beep and the UPS will run in battery mode.</p> <p>2. Turn-off In on-line mode, (1) press and hold the button for 3 seconds, (2) release it after you hear one beep, (3) use the Scrolling Up or Down button ( / ) to select 'Yes', and (4) press the Enter button () to confirm your selection. After that, the inverter will be off and the UPS will transfer to run in standby or bypass mode. The UPS will keep charging the batteries when the UPS is in standby/ bypass mode. To fully turn off the UPS, it is advised to disconnect the UPS from the AC power. In battery mode, (1) press and hold the button for 3 seconds, (2) release it after you hear one beep, (3) use the Scrolling Up or Down button ( / ) to select 'Yes', and (4) press the Enter button () to confirm your selection. After that, the UPS will be turned off.</p> <p>3. Fault Clear When the UPS has a fault condition, press and hold the button for 3 seconds, release it after you hear one beep and the UPS will try to clear the fault condition.</p>
2	 <p>ON/ OFF Button (Continued)</p>	<p> When the UPS clears the fault condition, it means that the buzzer/ warning message has been turned off. To eliminate the fault detected, please refer to <i>Chapter 11: Troubleshooting</i> for relevant solutions.</p> <p> The function mentioned above is only applicable to the condition when the UPS has a fault situation and the inverter is off.</p>

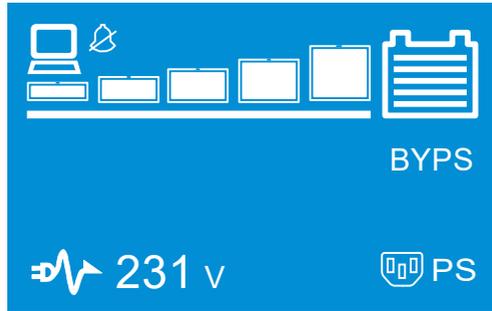
No.	Multi-function Button	Description
3	 <p data-bbox="210 373 280 427">Enter Button</p>	<p data-bbox="329 181 972 236">The button has multiple functions. Please refer to the following for detailed information.</p> <ol data-bbox="329 242 994 523" style="list-style-type: none"> <li data-bbox="329 242 994 379">1. Entering into the setup mode In the Main Screen (that shows the current operating mode), press the button for 0.1 seconds and the UPS will enter the Main Menu (setup mode). Please refer to <i>Chapter 9: LCD Display &amp; Settings</i>.</li> <li data-bbox="329 386 994 523">2. Selecting and confirming the parameter in setup mode In setup mode, press the button to choose the parameter you want to change, and the parameter will flash. Press the Scrolling Up or the Scrolling Down button to change the parameter and press the button again to confirm the change.</li> </ol>
4	 <p data-bbox="188 708 302 762">Scrolling Up Button</p>	<p data-bbox="329 549 972 603">The button has multiple functions. Please refer to the following for detailed information.</p> <ol data-bbox="329 609 963 833" style="list-style-type: none"> <li data-bbox="329 609 963 746">1. Scrolling Up/ Increasing Number In the Main Screen, press the button for 0.1 seconds and the UPS will directly enter the Measurement Menu's level 3 (see <i>Figure 9-1: Menu Tree</i>), which contains related Output information. In setup up mode, the button is used to navigate the setting items. Press the button for 0.1 seconds to go to the previous setting item.</li> </ol>
5	 <p data-bbox="181 1027 309 1117">Scrolling Up Button (Continued)</p>	<p data-bbox="329 858 969 1075">The button is also used to navigate or set up the setting parameter. Press the button for 0.1 seconds to go to the previous display or to increase a number. If the button is pressed for more than 2 seconds, the number will be increased by a single digit every 0.2 seconds automatically until the button is released or the number reaches its highest value.</p> <ol data-bbox="329 1088 956 1185" style="list-style-type: none"> <li data-bbox="329 1088 956 1185">2. LCD Reset Press the Scrolling Up and the Scrolling Down buttons together for 3 seconds to reset the LCD display.</li> </ol>

No.	Multi-function Button	Description
6	 <p>Scrolling Down Button</p>	<p>The button has multiple functions. Please refer to the following for detailed information.</p> <ol style="list-style-type: none"> <li>1. Scrolling Down/ Decreasing Number In the Main Screen, press the button for 0.1 seconds and the UPS will directly enter the Measurement Menu's level 3 (see <i>Figure 9-1: Menu Tree</i>), which contains related Output information. In setup up mode, the button is used to navigate the setting items. Press the button for 0.1 seconds to go to the next setting item. The button is also used to navigate or set down the setting parameter. Press the button for 0.1 seconds to go to the next display or to decrease a number. If the button is pressed for more than 2 seconds, the number will be decreased by a single digit every 0.2 seconds automatically until the button is released or the number reaches its lowest value.</li> <li>2. LCD Reset Press the Scrolling Up and the Scrolling Down buttons together for 3 seconds to reset the LCD display.</li> </ol>
7	 <p>Back/ Mute Button</p>	<p>The button has multiple functions. Please refer to the following for detailed information.</p> <ol style="list-style-type: none"> <li>1. Back to the Previous Menu Level In setup mode, press the button for 0.1 seconds to go back to the previous menu level.</li> <li>2. Mute When the UPS has any warning of fault conditions to trigger an audible alarm, press and hold the button for 3 seconds to turn off the audible alarm.</li> </ol>



If the LCD display goes dim, press any button mentioned above for 0.1 seconds to reactivate the LCD display and enable each button function.

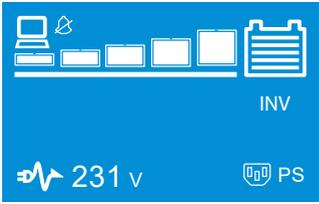
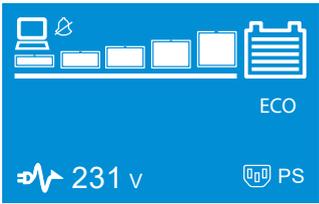
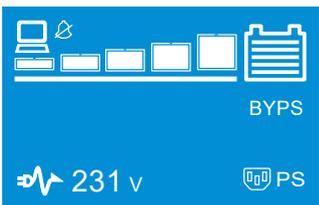
### 3.3. LCD Display



#### 3.3.1. Icon/ Display Definition

No.	Icon/ Display	Description
1		Indicates that power supply is OK.
2		Indicates that the power share output is ON.
		Indicates that the power share output is OFF.
3		Indicates the battery capacity level.
		Indicates that the battery is abnormal and needs replacement. If the battery is abnormal, the battery capacity icon (  ) will be empty.
4		Indicates the load level (%).
5		When the UPS runs normally, the display will show the input voltage.
6		When the UPS has abnormalities or is in fault condition, the display will show an error code and its corresponding fault or warning message.
7		Indicates that the buzzer is muted.
8		Indicates that the output is overloaded

### 3.3.2. Operating Mode Diagram Definition

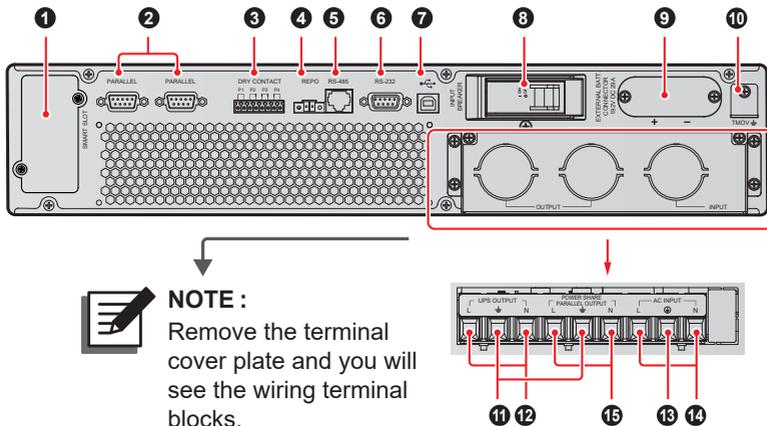
No.	Diagram	Description
1		Indicates ONLINE mode.
2		Indicates ECO mode.
3		Indicates BATTERY mode.
4		Indicates BYPASS mode.
5		Indicates AC STANDBY mode.

# 4. REAR PANEL

## Models:

NRT3-U5000 & NRT3-U5000C & NRT3-U7000 & NRT3-U7000C & NRT3-U7000CLA & NRT3-U7000CLAC & NRT3-U9000 & NRT3-U9000C & NRT3-U11000 & NRT3-U11000C & NRT3-U11000CLA & NRT3-U11000CLAC

The rear panels of the above mentioned models are similar. The differences are the battery voltage and DC value printed on the panels. For detailed information about the printed battery voltage and DC value, please refer to the table below. Here, only the 5kVA UPS model's rear panel (see *Figure 4-1*) is used as an example.



**NOTE :**  
Remove the terminal cover plate and you will see the wiring terminal blocks.

(Figure 4-1: 5kVA Rear Panel)

No.	Item	Functions
1	Smart Slot	For installation of an optional card. For more information, please refer to <i>Chapter 5: Communication Interfaces</i> .
2	Parallel Ports	For UPS parallel communication. For more information, please refer to <i>Chapter 5: Communication Interfaces</i> .  To enhance parallel reliability, please adopt the Daisy Chain method to execute parallel configuration.

No.	Item	Functions
3	Dry Contacts	<p>1. Output dry contacts: These receive the UPS's event information to indicate the UPS status or internal messages.</p> <p>2. Input dry contacts: Lets the UPS receive external control signals.</p> <p>3. For more information, please refer to <i>Chapter 5: Communication Interfaces</i>.</p>
4	REPO Port	<p>When emergency events occur, it can shut down the UPS safely and immediately. Please refer to <i>Chapter 4: REPO Port</i> for details.</p>
5	RS-485 Port	<p>Connects to a computer so you can monitor the UPS status or let the UPS communicate with lithium ion batteries.</p>
6	RS-232 Port	<p>Connects to a computer so you can monitor the state of the UPS, configure the UPS parameters and upgrade the UPS firmware. Please refer to <i>Chapter 5.6 RS-232 Port and USB</i> for more information.</p> <p> The USB port and the RS-232 port must not be used simultaneously. The USB port has the higher priority.</p>
7	 (USB Port)	<p>Connects to a computer so you can monitor the state of the UPS, configure the UPS parameters. Please refer to <i>Chapter 5.6 RS-232 Port and USB</i> for more information.</p> <p> The USB port and the RS-232 port must not be used simultaneously. The USB port has the higher priority.</p>
8	Input Breaker	<p>Controls the UPS's input switch and for safety protection.</p>
9	External Batt. Connector	<p>Connects to the external battery pack (optional).</p> <p>5K: 192V DC 29A            7K: 192V DC 35A            9K: 240V DC 37A            11K: 240V DC 46A</p>

No.	Item	Functions
10	TMOV ⚡	For UPS internal TMOV grounding.  Do not use for UPS or load grounding
11	⚡	For loads grounding.
12	UPS Output Terminal Block	1. Uncontrollable. 2. Without power share function. 3. Connects to the loads, L & N.
13	⊕	For UPS grounding.
14	AC Input Terminal Block	Connects to the mains, L & N.
15	UPS Power Share / Parallel Output	1. With power share function. 2. Connects to the loads L & N.   Please note that for parallel application, the output loads can only be connected to this output terminal block.   When the UPS is running in single-unit mode, the output terminal block has power share function. The power share function will be disabled automatically by the UPS when the UPS is running in parallel mode.

## 5. COMMUNICATION INTERFACES



The UPS can still function properly without making the connections below.



For the location of the following communication interfaces, please see **Figure 4-1**.

Communication software and accessories are available for monitoring the status of the UPS, in order to optimize normal operation and ensure that shutdown at the end of back-up time is managed correctly. Applications allow recording of all power outages and any depletion of battery power so as to enable the activation of an automatic procedure for closing programs in ordered sequence and shutting down the system.

NETYS RT is equipped with RS232, RS485 and USB communication interfaces, and slots for Web/SNMP cards.

### 5.1. Communication solutions

Local View, an ideal UPS monitoring and shutdown point-to-point solution for Windows®, Linux® and Mac OS X® operating systems.

Web/SNMP manager (Web/SNMP slot card) allowing control via LAN using TCP/IP protocol, and remote shutdown management.

BMS (JBUS-RS232 or RS485 interface), allows the UPS to interface with a Building Management System.

### 5.2. Smart Slot

The smart slot is for option cards. You can install the SNMP or Relay I/O card in this slot to let the system have network communication and dry contact functions.

### 5.3. Parallel Ports

The two parallel ports are for UPS parallel communication. UPS units (a maximum of 2) with the same capacity, voltage and frequency can be coupled via the provided parallel cable to run in parallel mode.

### 5.4. Dry Contacts

The NETYS RT UPS provides one input dry contact for you to receive external control signals. You can set up relevant items in the Dry Contact Setting screen, which includes Disable/ ROO/ RPO/ Remote shutdown/ Forced bypass/ On generator. In addition, there are three configurable output dry contacts for you to receive UPS events. The output dry contacts are normally open (NO). You can set up relevant items in the Dry Contact Setting screen, which includes Disable/ On

bat/ Low bat/ Bat fault/ Bypass/ UPS OK/ Load protected/ Load powered/ General alarm/ Overload alarm /Backfeed. Please refer to **9.2.2 Setting Menu** and **9.2.4 Maintenance Menu** for relevant information.

## 5.5. REPO Port

The REPO port can be connected to an external switch. After the external switch is turned to the 'CLOSED' position, the UPS will switch off the inverter immediately and cut off the UPS output without transferring to bypass mode.



The REPO port can also be used for ROO applications, which allow you to remotely turn the inverter on/off. If you need detailed ROO information or ROO setup service, please contact your local vendor or customer service. Please note that this port can only be modified by qualified service personnel.

## 5.6. RS-232 Port and USB

You can use an RS-232 or USB cable to connect the UPS to a computer and install the LocalView software or Building Management System (BMS) software to check and monitor the UPS status. These interfaces are required to run the Local View UPS monitoring and shutdown point-to-point solution for Windows®, Linux® and Mac OS X® operating systems.

- The RS-232 port provides the following functions
  - RS-232 communication (baud rate: 9600)
  - UPS configuration
- Pin Assignment
  - PIN 2: TXD <Transmitting Data>
  - PIN 3: RXD <Receiving Data>
  - PIN 5: GND <Signal Ground>
- Hardware
  - Baud Rate: 9600bps
  - Data Length: 8 bit
  - Stop Bit: 1 bit
  - Parity: None



\*1 You can download the LocalView software via the following link: [www.socomec.com](http://www.socomec.com), «Download and Tools menu», «Software» sub menu.



Do not use the USB port and the RS-232 port simultaneously. If you connect the USB cable (user-supplied) to the USB port, the RS-232 port will be immediately disabled.



Computers recognize the USB as a virtual COM port. From Windows® 10 operating system version, the native operating system driver is recommended. For operating system version earlier than Windows® 10, please download the driver from the following address:  
<https://www.socomec.com/netys-manuals>

## 5.7. WEB/SNMP Card (option)

With this card installed (inside the smart slot), the UPS can be connected directly to a LAN (RJ45 ethernet) and controlled remotely from a WEB browser using TCP/IP protocol. Reference should be made to the dedicated literature for a full description of the functionalities.

## 5.8. RS-485 Port

You can use a RS-485 cable (user supplied) to connect the UPS with a computer and install the LocalView or Building Management System (BMS) software to check and monitor the UPS status.

This interface is required to run the Local View UPS monitoring and shutdown point-to-point solution for Windows®, Linux® and Mac OS X® operating systems.

- The RS-485 port provides the following functions
  - RS-485 communication (baud rate: 2400/ 9600)
  - UPS configuration
  - Firmware upgrade (baud rate: 9600)

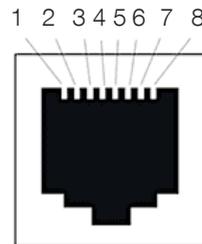
- Pin Assignment

- PIN 7: D+
- PIN 8: D-

- Hardware

- Baud Rate: 9600bps
- Data Length: 8 bit
- Stop Bit: 1 bit
- Parity: None

RS 485 connector pinout



The RS485 port is necessary for Lithium Ion Battery connection. If you configure the UPS with LIB, the RS-485 port will immediately be reserved for the LIB.

## 5.9. External Battery Connector



When connecting the UPS to the battery extension, use only the cable provided with the equipment.



Any wiring error that results in the polarity of the battery being inverted can cause permanent damage to the equipment.

The connector is for connection to the external battery pack(s). Please see below for relevant information.

### Battery

UPS	Charge Voltage	Charge Current	Low Battery Shutdown	Number of Batteries
5kVA/ 7kVA	219.2Vdc	1A (default)*1	168V±3%	12V × 16 PCS
9kVA/ 11kVA	274Vdc	2A (default)*1	210V±3%	12V × 20 PCS



If you need to modify the charge current default setting, please contact your local vendor or customer service.

### External Battery Pack

- To increase the battery back-up time, you can connect several external battery packs to the UPS.
- Socomec external battery pack is optional.
- When connecting the external battery pack to the UPS, you must install an appropriate non-fuse DC breaker or a fast-acting fuse that meets the safety certification. Do not use an AC breaker.
- The breaker must be a 2-pole non-fuse DC breaker with characteristics of 1-pole 250Vdc, 2-pole 500Vdc and 35kA (or above) DC breaking capacity.

## Battery/ Battery Pack Connection Warnings

- Only use the same type of batteries from the same supplier. Never use old, new and different Ah batteries at the same time.
- The number of batteries must meet UPS requirements.
- Do not connect the batteries in reverse.
- Use the voltage meter to measure whether the total voltage, after battery pack connection, is around  $12.5Vdc \times$  the total number of batteries.



Before commencing any operation, make certain that:

- the UPS has been shut down completely and all isolation switches are OFF;
- switches upstream of the UPS are OFF.
- Set the switch on the back of the battery extension module to the OFF position.
- Connect the battery extension module to the UPS.
- Set the switch on the back of the battery extension module to the ON position.
- Set the number of EBM connected to the UPS in the Settings menu.



Turn off the UPS and cut off the AC source before performing battery/ battery pack replacement.



A battery can present a risk of electric shock and high short-circuit current.



Servicing of batteries and battery packs must be performed or supervised by qualified service personnel familiar with batteries, battery packs and the required precautions. Keep unauthorized personnel away from batteries and battery packs.

## Alarm

When any external battery pack connected to the UPS has the following problems, the UPS system will sound an alarm. Please see the table below.

No.	External Battery Pack Status	Description
1	Battery Mode	The alarm beeps once every 2 seconds.
2	Battery Low Warning	The alarm beeps once every 0.5 seconds.
3	Battery Missing/ Weak Battery/ Battery Replacement	The alarm beeps once every 2 seconds.
4	Overload	Overload_105%~125%: The alarm beeps once every 2 seconds. Overload_125%~150%: The alarm beeps once every 0.5 seconds.
5	Fault	The alarm beeps continuously for 5 seconds when the UPS detects an internal fault. After the 5-second long beep, the alarm beeps once every 2 seconds.



After reconnecting or replacing the batteries, it might take a while for the UPS to switch off the alarm automatically. If, after a period of time, the audible alarm continues, please manually initiate a battery test. Please follow the route below to execute the manual battery test in order to clear the alarm.

Route: press the button  for 0.1 seconds → select  → select Test → select Start Battery Test. For relevant information, please refer to **Chapter 9.2 Main Menu**.



Servicing of lithium-ion battery pack must be performed by qualified service personnel. Keep unauthorized personnel away from batteries and battery packs. If any maintenance is required, please directly contact Socomec service centers.



The Lithium-ion battery pack can not be paralleled to any other battery pack. Only a single Lithium-ion battery pack can be connected to the UPS.

## 5.10. Use of Warning Relay Interface (option)

This is an optional card (slot-mounted) that will manage 6 indication circuits with isolated contacts carrying information on the status of the UPS. The maximum voltage that can be applied to the contacts is 24 VDC, and the maximum current 500 mA.

Relay contacts can be set individually for NO (default) or NC operation, and programmed selectively for customized monitoring of the UPS.

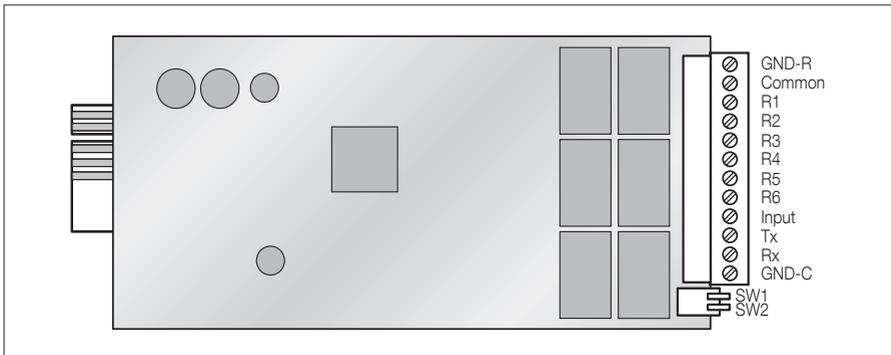
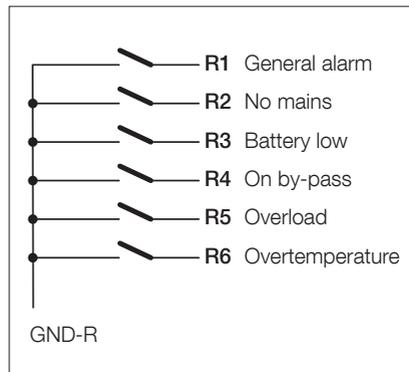
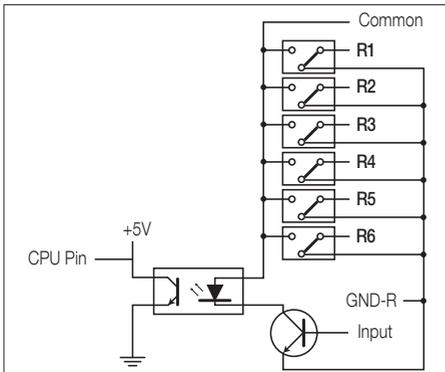
If requested, the UPS can also be switched off utilizing a remote external shutdown contact. The command is acknowledged when the contact is made and held for 3 seconds (default), whereas the external contact must be made between the common and input pins.



The external contact **MUST** be dedicated and voltage-free, so as not to cause permanent damage to the UPS.

The shutdown input can be configured alternatively as a battery test input.

### 5.10.1. Internal circuit



## 5.10.2. Standard configuration

SW1	SW2	Relay contact
OFF	OFF	NO
ON	OFF	NC

GND-R: Relay ground contact	
Common: 12~24 V DC	
R1	General alarm
R2	No mains
R3	Battery low
R4	On by-pass
R5	Overload
R6	Overtemperature
Input: Remote shutdown or battery test	

## 5.10.3. Customized configuration for relay and/or input contacts

Connect **Tx** to pin 2, **Rx** to pin 3 and **GND-C** to pin 5 of the computer's RS232 port.

In Windows, start the Hyper-Terminal application and proceed to open the specified COM port.

Set the following properties: Baud rate: 2400, Data Bits: 8, Parity: None, Stop Bit: 1, Flow Control: None.

### Configuration

Press <Enter> to display the main menu of the relay card.

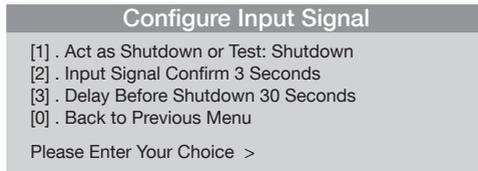
UPS Relay Card
Firmware Version: Relay Card V1.4
[1] . Customize Output Relay
[2] . Configure Input Signal
[3] . Customize Normal Open or Normal Close
[0] . Quit
Please Enter Your Choice >

1. Press '1' to configure the alarms relative to contacts R1~R6 (Customize Output Relay). This menu can be used to assign a customized alarm indication to contacts R1~R6. Having completed the configuration, shift SW2 to the ON position to activate the settings. The default settings can be restored by setting SW2 to OFF.



2. Press '2' to configure the **input** signal.

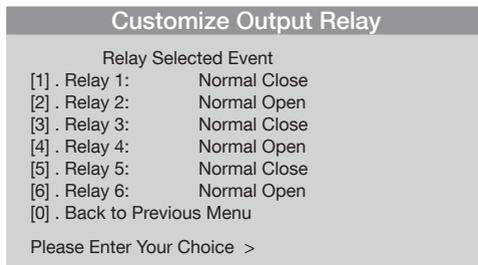
The input signal can be used either to shut down the UPS or to test the batteries. The delay preceding shutdown of the UPS can be set up to 9999 seconds maximum.



3. Press '3' to configure NO or NC operation of each relay.

Shift **SW2** to the ON position to activate the settings.

If SW2 is returned to the OFF position, SW1 can be used to check the NO or NC position of all the relays.

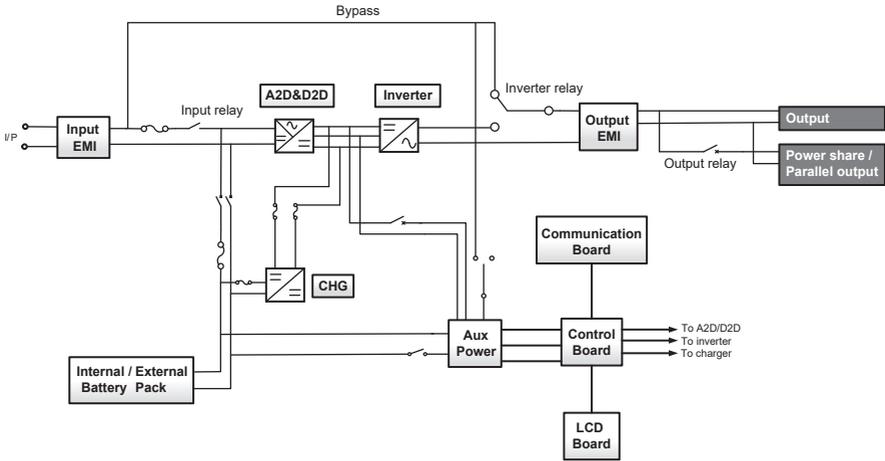


4. Press '0' to end the configuration session. The system will prompt you to save the new settings.

Press 'Y' to save, 'N' to cancel.

# 6. INSTALLATION

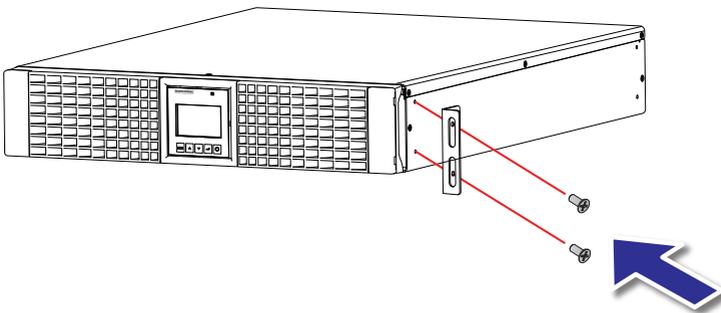
Please refer to the system block diagram and related information below for correct installation.



## 6.1. Rack Mounting

Use the included bracket ears and screws to mount the UPS in a rack by following the procedures below.

1 Attach the included bracket ears to the lateral mounting holes of the UPS. See Figure 6-1.



(Figure 6-1: UPS Bracket Ear Installation)

2 Follow steps 1 to 4 to install the UPS in Socomec's rail kit (optional). See *Figure 6-2*.

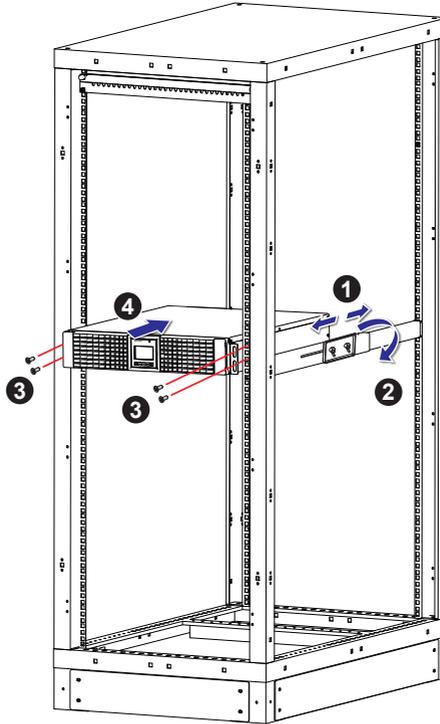
Step 1 : Adjust the length of the rail according to the rack.

Step 2 : Tighten the nuts.

Step 3 : Fix the rail on the rack.

Step 4 : Insert the UPS in the rack and tighten the screws.

3 If you want to use a non-Socomec rail kit, please only follow step 4 .

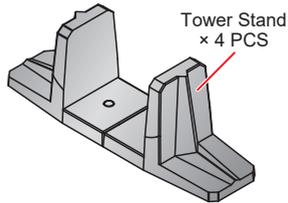


(Figure 6-2: Rack Mounting)

## 6.2. Tower Mounting

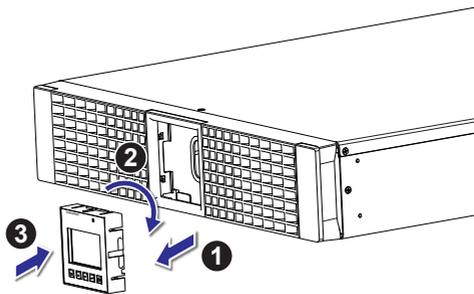
Use the included tower stands to mount the UPS in an upright tower position by following the steps below.

- 1 Assemble the tower stands (see *Figure 6-3*).



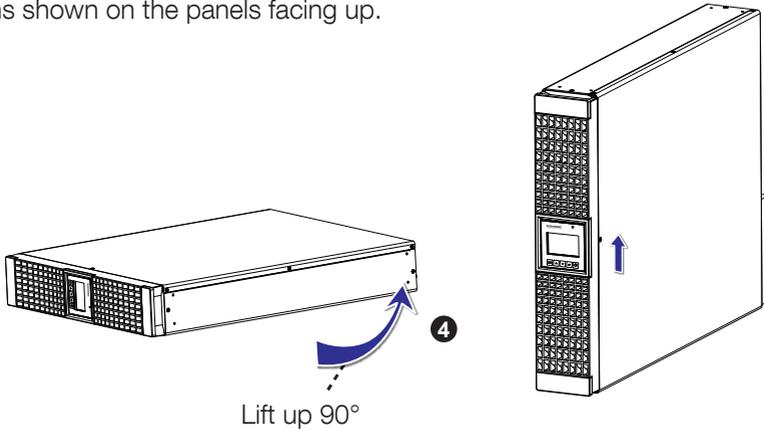
(Figure 6-3: Assemble the Tower Stands for 5 / 7 / 9 / 11 kVA UPS)

- 2 Pull out the control panel ①, rotate the panel 90° clockwise ② and re-insert the control panel ③ (see *Figure 6-4*).



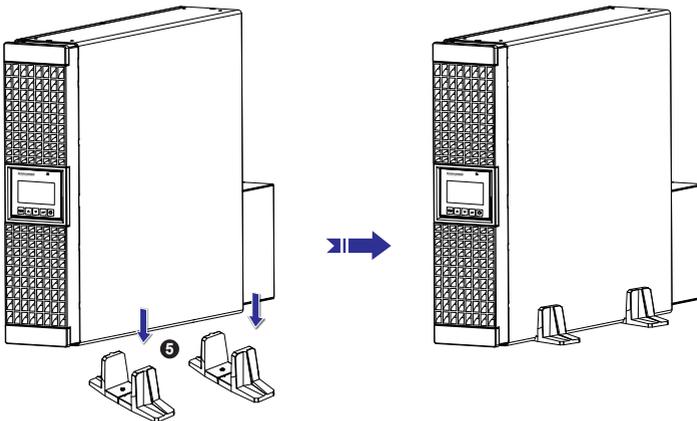
(Figure 6-4: Rotate the Control Panel and the Socomec Logo Nameplate)

③ Carefully lift the whole unit upright ④ with the Socomec logo nameplates and the icons shown on the panels facing up.



(Figure 6-5: Place the Whole Unit Upright)

④ Place the whole unit inside the tower stands ⑤.



(Figure 6-6: Place the Whole Unit inside the Tower Stands)

Leave adequate space (at least 50cm) around all sides of the unit for good ventilation.



A minimum of two people are required to execute ③ and ④.

## 6.3. Battery/ Battery Pack Replacement

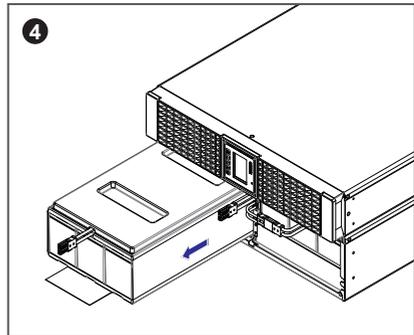
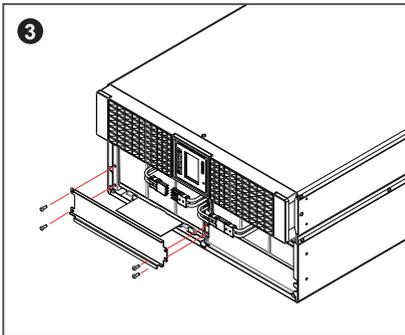
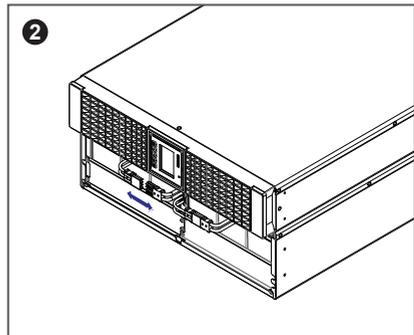
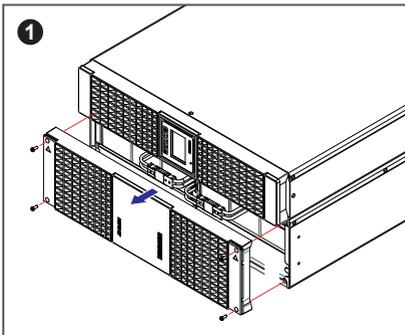
1. Turn off the UPS and cut off the AC source before performing battery/ battery pack replacement.
2. A battery can present a risk of electric shock and high short-circuit current.
3. Servicing of batteries and battery packs must be performed or supervised by qualified service personnel familiar with batteries, battery packs and the required precautions. Keep unauthorized personnel away from batteries and battery packs.

Replace the battery/ battery pack by following the procedures below.

- 1 Remove the screws and remove the battery pack's front bezel 1.
- 2 Disconnect the battery terminals 2.
- 3 Use the insulated screwdriver to remove the screws from the protective cover located in front of the battery 3.
- 4 Pull out the battery from the left battery compartment and insert a new one. Follow the same procedure to replace the battery in the right battery compartment 4.



A minimum of two people are required to execute 3 and 4.



- 5 Reassemble the battery pack in reverse order.

# 7. CONNECTION AND WIRING

## 7.1. UPS Connection Warnings

① When connecting the UPS to the mains and the loads, it is highly recommended that you install the protective devices. Please refer to the table below and see *Figure 7-3*.

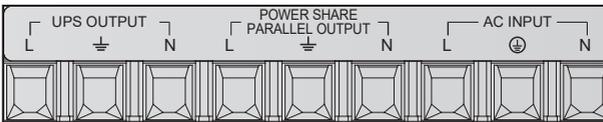
UPS Power Rating	Suggested Protective Device
5 / 7 kVA	D curve-50A circuit breaker
9 / 11 kVA	D curve-80A circuit breaker

② The protective devices must use approved components that meet safety certifications.

③ The power supplying to the UPS must be single-phase in accordance with the unit's rating label, and the UPS must be properly grounded.

## 7.2. Input/ Output Connection

① Please see the figures below for input/ output connection.



(Figure 7-1: Input/ Output Wiring Terminal Block)

② Cable Selection:

For the specifications of input/ output cables, please refer to *Table 7-1*.

Table 7-1: Specifications of Input/ Output Cables

Spec. / Capacity	5 / 7 kVA	9 / 11 kVA
Input/ Output Cables	6mm <sup>2</sup>	10mm <sup>2</sup>
Maximum Tightening Torque (For AC Wiring)	25.5kgf.cm	25.5kgf.cm

In accordance with National Electrical Codes (NEC), please install the suitable conduits and cable sleeves.

③ When connecting the input/ output power cords, please observe the following rules.

- Turn off the UPS and cut off both AC source and the battery source before connection.
- Calculate the power consumption of the loads to avoid an overload condition.
- Ensure that the screws are tightly fixed after connection. Please refer to *Table 7-1*.

④ Backfeed Protection:

When the UPS runs in battery mode or during AC power failure, the UPS's inner voltage or energy might be fed back to the input terminals, either directly or via a leakage loop. To avoid the risk of electric shock resulting from the backfeed, installing of a backfeed protection device between the AC input and the UPS is highly recommended.



The UPS doesn't have any built-in backfeed protection device. Installation of the backfeed protection device between the AC input and the UPS is highly recommended.



If there is no backfeed protection device installed between the AC input and the UPS, please:

- 1) attach a warning label on the switch or breaker that controls the AC power supply to the UPS,
- 2) check if any hazardous voltage exists on any terminals connected to the AC power. The warning label shall carry the following wording or equivalent.

**Before Working on This Circuit**  
 -Isolate Uninterruptible Power System (UPS)  
 -Then check for Hazardous Voltage between all terminals including the protective earth.



**Risk of Voltage Backfeed**

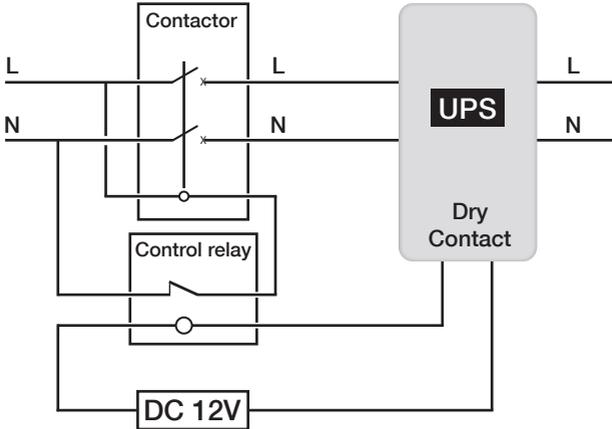
## Backfeed Protection Device Requirements:

 set the DRY contact with «backfeed» configuration.

UPS	Suggested Backfeed Protection Device Rating Voltage/ Current
5 / 7 kVA	208/ 220/ 230/ 240Vac; 40A
9 / 11 kVA	208/ 220/ 230/ 240Vac; 65A

## Backfeed Protection Wiring Diagram:

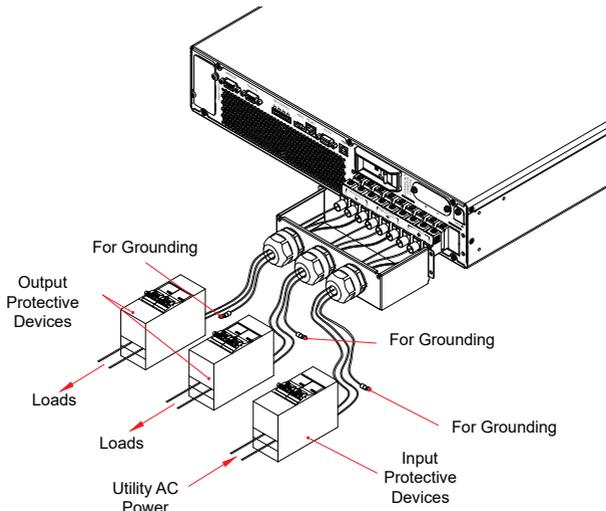
Please refer to the diagram below to install the backfeed protection device between the AC input and the UPS.



(Figure 7-2: Backfeed Protection Wiring Diagram)

## 7.3. Single Unit Wiring

- ① Remove the terminal cover plate and you will see the wiring terminal block shown in *Figure 7-3*.
- ② Confirm the input breaker is in the OFF position.
- ③ According to the capacity and the model of your UPS, select appropriate input and output cables.
- ④ Connect the main AC source/ output/ external battery pack cables to the wiring terminal block. Please see *Figure 7-3*.
- ⑤ Ground the UPS.



(Figure 7-3: Single Unit Wiring Diagram)

## 7.4. Parallel Units Wiring



You can parallel a maximum of two UPS units. To enhance parallel reliability, please adopt the Daisy Chain method to execute parallel configuration. Please see **Figure 7-4**.



Please ensure that each parallel UPS's wiring is correct, and all external output protective devices are in the 'OFF' position. For the location of output protective devices, please see **Figure 7-3**.



When UPS units are paralleled, the diameter and the length of each parallel UPS's input cables and output cables must be equal. This ensures that the parallel UPS units can equally share the equipment loads in bypass mode.



Before start-up of the parallel system, make sure that each UPS's ID is correctly set up and each unit's major parameters are set the same. For the major parameters' information, please contact service personnel.



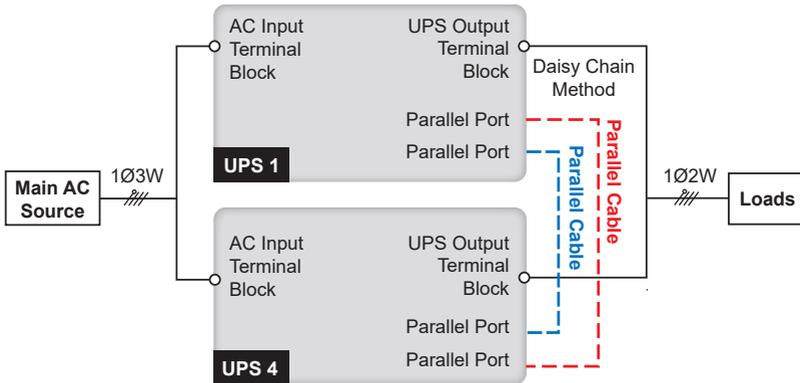
Ensure that each parallel UPS is completely turned on before starting up the loads. To prevent the UPS from activating the overload protection mechanism during the start-up process, please turn on the high-power loads first and then the low-power loads.



The parallel UPS units cannot connect with common batteries.



The parallel UPS units cannot run in ECO mode.



(Figure 7-4: Parallel Units Wiring Diagram)

- ① Please follow steps ① ~ ④ stated in **7.3 Single Unit Wiring**.
- ② Use the provided parallel cable to connect the parallel ports on the parallel units.
- ③ Ground the parallel UPS unit.

## 7.5. External Battery Pack Connection

To increase the battery back-up time, you can connect several external battery packs to the UPS. Please follow the steps below (*Figure 7-5 & Figure 7-6*) and information in §5.8 *External Battery Connector* to complete the connection.

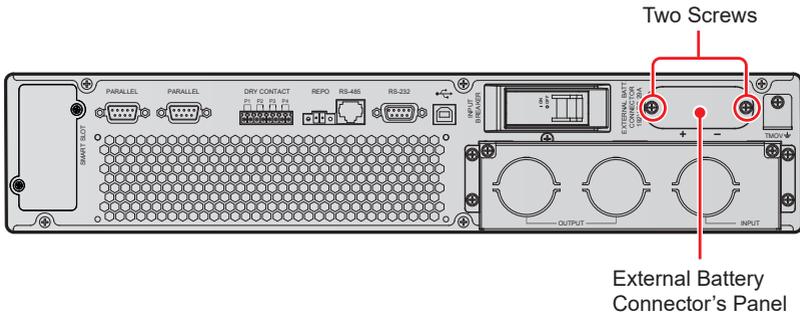


When connecting the external battery pack to the UPS, you must install an appropriate non-fuse DC breaker or a fast-acting fuse that meets the safety certification. Do not use an AC breaker.



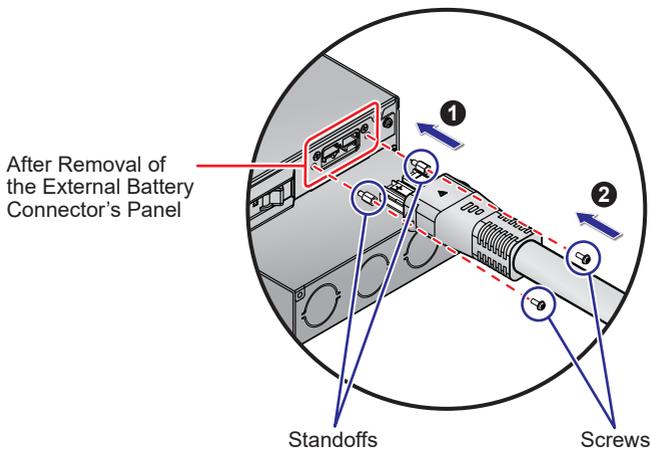
The breaker must be a 2-pole non-fuse DC breaker with characteristics of 1-pole 250Vdc, 2-pole 500Vdc and 35kA (or above) DC breaking capacity.

- 1 Remove the two screws from the external battery connector's panel shown below.



(Figure 7-5: Remove External Battery Connector's Panel)

- 2 Insert the provided battery cable into the external battery connector 1 and use the provided two screws and two standoffs to firmly fix the battery cable 2.



(Figure 7-6: Battery Cable Connection)

## 8. OPERATION

### 8.1. Single Unit Start-up



Before start-up, ensure that the batteries are fully charged. Before using the UPS for the first time, please check the battery capacity and the charging settings. Make sure that you charge the batteries until the battery capacity percentage shown on the LCD of the UPS is 100% (.



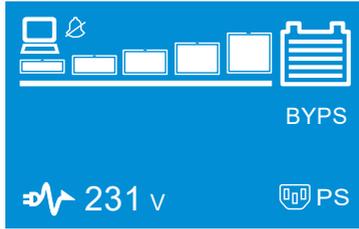
The configurable battery Quantity is 12, or 16 ~ 22. Please make sure that the actual battery Quantity is the same as configured on the LCD. Set up the corresponding charge current based on the total battery amp-hour.



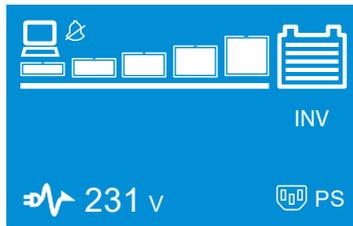
If the UPS connects to an inductive load, the inrush current (initial surge current) may restart the inverter. To avoid this situation, please turn on the inductive load in bypass mode before starting up the inverter.

#### 8.1.1. Start-up with AC Input (Single Unit)

- ① Verify if the UPS's input meets with N, L & G of the utility AC power works normally.
- ② Switch on the input protective device (see *Figure 7-3*) installed between the UPS and the utility AC power and switch on the input breaker. After that, the UPS will enter the Initial Setting Screen (please refer to **9.1 Initial Setting Screen** for more information).
- ③ Press and hold the ON/ OFF button () for 3 seconds to start up the UPS. Release the button after you hear one beep and the UPS will start up. After the UPS performs self-diagnosis, the UPS will run in ON-LINE mode.



Press and hold the button  for 3 seconds and release it after you hear one beep.

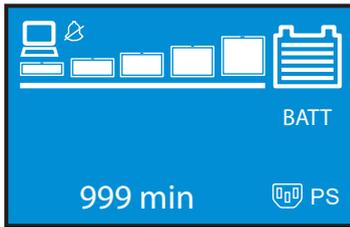


④ Once the UPS is running normally, switch on the output protective devices (see *Figure 7-3*) installed between the UPS and the loads.

### 8.1.2. Start-up with Batteries (Single Unit)

- ① Please check the '+' and '-' poles of the batteries and ensure that wiring is correct.
- ② Turn on the UPS's external battery pack's breaker.
- ③ When there is no AC input, press and hold the ON/ OFF button () for 3 seconds to start up the UPS. Release the button after you hear one beep and the UPS will start up. After the UPS performs self-diagnosis, the UPS will run in BATTERY mode.

Press and hold the button  for 3 seconds and release it after you hear one beep.



④ Once the UPS runs normally, switch on the output protective device (see *Figure 7-3*) installed between the UPS and the loads.



To prevent the UPS from activating the overload protection mechanism during the start-up process, please turn on the high-power loads first and then the low-power loads.

## 8.2. Single Unit Turn-off

① Make sure all of the loads connected to the UPS are off.

② (1) Press and hold the ON/ OFF button () for 3 seconds, (2) release it after you hear one beep, (3) use the Scrolling Up or Down button ( / ) to select 'Yes', and (4) press the Enter button () to confirm your selection.

③ Switch off the input breaker, input protective device (see *Figure 7-3*) and output protective devices (see *Figure 7-3*).

④ After the LCD backlight goes dim and the fans stop completely, switch off the battery breaker to ensure that there is no remaining battery power.

## 8.3. Parallel Units Start-up



before starting, read **Section 7.4**.

### 8.3.1. Start-up with AC Input (Parallel Units)

- ① Ensure that the input and output connection are correct for the parallel system.
- ② Turn on the circuit breaker on each connected external battery pack.
- ③ Turn on each UPS's input protective device and input breaker.
- ④ Press and hold each parallel UPS's ON/ OFF button (🔌) for 3 seconds to start up the UPS. Release the button after you hear one beep and the UPS will start up. After each UPS performs self-diagnosis, each parallel UPS will run in ON-LINE mode.
- ⑤ Turn on each UPS's output protective devices.
- ⑥ Once the parallel system runs normally, please turn on the high-power loads first and then the low-power loads.

### 8.3.2. Start-up with Batteries (Parallel Units)

- ① Please check the '+' and '-' poles of the batteries and ensure that wiring is correct.
- ② Turn on the circuit breaker on each connected external battery pack.
- ③ Press and hold each parallel UPS's ON/ OFF button (🔌) for 3 seconds to start up the UPS. Release the button after you hear one beep and the UPS will start up. After each UPS performs self-diagnosis, each parallel UPS will run in Battery mode.
- ④ Turn on the output protection devices of each UPS.
- ⑤ Once the parallel system runs normally, please turn on the high-power loads first and then the low-power loads.

## 8.4. Parallel Units Turn-off

- ① Make sure all of the loads connected to each Parallel UPS are off.
- ② (1) Press and hold each parallel UPS's ON/ OFF button (🔌) for 3 seconds, (2) release it after you hear one beep, (3) use the Scrolling Up or Down button (⬆️/⬇️) to select 'Yes', and (4) press the Enter button (↵) to confirm your selection. After that, the parallel system will transfer to bypass mode if bypass power runs normally.
- ③ Turn off each UPS's input breaker, input protective device and output protective devices. After the LCD backlight goes dim and the fans stop completely, the parallel system will completely shut down.
- ④ Switch off each UPS's external battery breaker or disconnect all external battery cables from the parallel UPS to ensure that there is no remaining battery power.

## 8.5. Operating Mode

### Standby Mode

After the UPS is connected to the utility AC power, it will supply power to the UPS and the batteries will be charged.

### Online Mode

In on-line mode, the connected loads are supplied by the inverter, which derives its power from the utility AC power, and the UPS charges the batteries and provides power protection to its connected loads.

### Bypass Mode

In bypass mode, the critical loads are directly supplied by the utility AC power and the batteries are charged. The default setting of the UPS is set in BYPASS mode.

### Battery Mode

When the UPS is operating during a power outage, the batteries provide DC power, which maintains inverter operation to supply power to the critical loads.

### ECO Mode

In ECO mode, when the utility input voltage and frequency are within the range of rated voltage  $\pm 10\%$  and rated frequency  $\pm 3\text{Hz}$ , the loads are supplied by the utility AC power; if out of the range, the loads are supplied by the inverter.

### Frequency Conversion Mode

In Frequency Conversion mode, the UPS output frequency is manually set up. The system will disable the bypass function and there is no bypass output.

## 9. LCD DISPLAY & SETTINGS



Please refer to **Chapter 3: Operation Panel** to learn how to use the operation panel and understand every icon/ diagram.

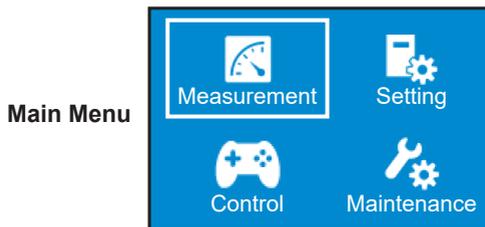


Each of the display diagrams shown in this chapter is for reference only. Actual display depends on the operation of the UPS.

The following flow chart helps you to understand how to navigate each display screen.

### 9.1. Main Menu

In the Main Screen, press the button  for 0.1 seconds to enter the Main Menu. You can set up relevant items here.

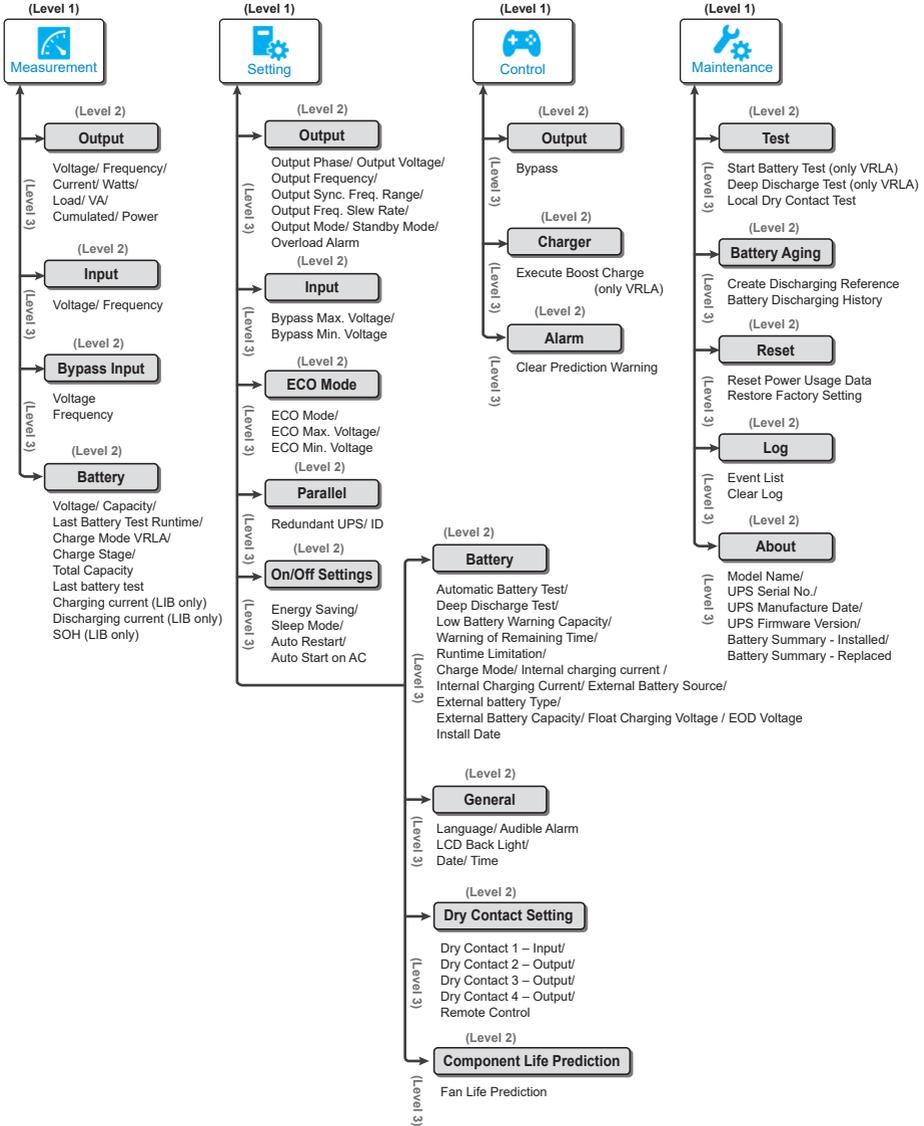


Please note that only qualified service personnel can perform setup actions.

**For setup procedures, please refer to the following:**

- ① In the Main Menu, select the item you want to configure, press the ENTER button  for 0.1 seconds and the UPS will enter the setup mode.
- ② Press the button  for 0.1 seconds or press the button  for 0.1 seconds to navigate the setting items.
- ③ Press the button  for 0.1 seconds to choose the parameter that you want to change, and the parameter will flash.
- ④ Press the button  for 0.1 seconds or press the button  for 0.1 seconds to increase or decrease the parameter value. If either of the buttons is pressed for over 2 seconds, the LCD will automatically switch between the selectable values every 0.2 seconds until either of the buttons is released or the number reaches its highest or lowest value.
- ⑤ Press the button  to confirm your parameter setup or press the button  to go back to the previous status.
- ⑥ After that, press the button  for 0.1 seconds or press the button  for 0.1 seconds to move to the previous or the next setting item.
- ⑦ In setup mode, press the  button and the LCD will exit from the setup mode.
- ⑧ In setup mode, if you don't press any button for more than 5 minutes, the LCD will exit from the setup mode and go back to the original display automatically.

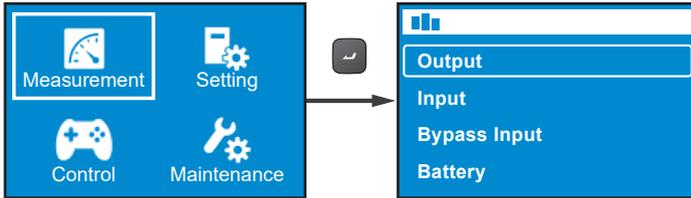
Please refer to the Menu Tree below for all setting options.



(Figure 9-1: Menu Tree)

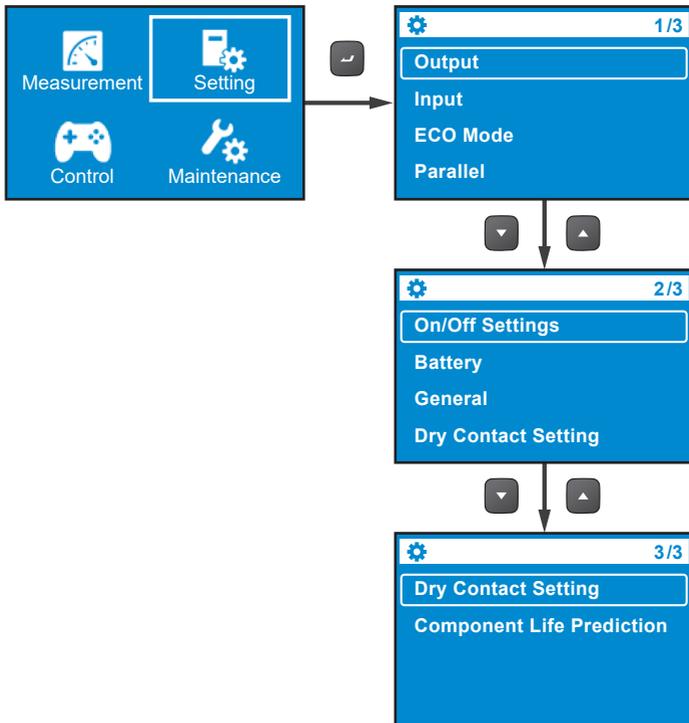
### 9.1.1. Measurement Menu

In the Main Menu, after selecting  , press the button  to enter the Measurement Menu. The Measurement Menu displays the UPS's status readings, such as Output, Input, Bypass Input and Battery information.



### 9.1.2. Setting Menu

In the Main Menu, after selecting  , press the button  to enter the Setting Menu.



You can choose the setup items such as **Output, Input, ECO Mode, Parallel, On/ Off Settings, Battery, General, Dry Contact Setting and Component Life Prediction** to set up relevant settings. For more information about the **Setting Menu**, please refer to the tables below for each setup item's relevant default value and selectable value.

## Output

Setup Items	Selectable Value	Default
Output Phase	1-phase	1-phase
Output Voltage	200V, 208V, 220V, 230V, 240V	230V
Output Frequency	Auto* <sup>1</sup> / Converter-50Hz* <sup>2</sup> / Converter-60Hz* <sup>2</sup>	Auto
Output Sync. Freq. Range	±0.5/ 1/ 3/ 5Hz	±3Hz
Output Freq. Slew Rate	0.5 / 1 / 2Hz/sec.	1 Hz/sec.
Output Mode	Industrial/ IT	IT
Standby Mode	No output/ Bypass output	No output
Overload Alarm	30-105% (per step: 5%)	105%



\*1: When the **Output Frequency** is set as **Auto**, the output frequency will vary according to the bypass frequency. If the bypass frequency is  $\geq 55\text{Hz}$ , the **Free\_Run\_Frequency/ Cold\_Start\_Frequency** will be set as **60Hz**.

If the bypass frequency is  $< 55\text{Hz}$ , the **Free\_Run\_Frequency/ Cold\_Start\_Frequency** will be set as **50Hz**.



When the **Output Frequency** is set as **Auto** and the **Bypass Output** under the **Standby Mode** item is set as **Enable**, the bypass output range will be the same as the Output Sync. Freq. Range.



\*2: When the **Output Frequency** is set as **Converter-50Hz/ Converter-60Hz**, the UPS will enter the Frequency Conversion mode and the bypass output will become **Disable**.

## Input

Setup Item	Selectable Value	Default Value
Bypass Max. Voltage	+10/ 15/ 20%	+15%
Bypass Min. Voltage	-10/ 15/ 20/ 25/ 30/ 35/ 40%	-20%

## ECO Mode

Setup Item	Selectable Value	Default Value
ECO Mode	Disable/ Enable	Disable
ECO Max. Voltage	5-15% (per step: 1%)	+10%
ECO Min. Voltage	5-15% (per step: 1%)	-10%



The setup items ECO Max. Voltage and ECO Min. Voltage will only be shown on the display when ECO Mode is enabled.

## Parallel



The following function is not applicable to the Standard Runtime Model.

Setup Item	Selectable Value	Default Value
Redundant UPS	0-1	0
ID	1-2	1

## On/ Off Settings

Setup Item	Selectable Value	Default Value
Energy Saving	Option 1*: Enable/ Disable Option 2: 1-15mins (per step: 1 min) Option 3: 300W-1500W (per step: 100W)	Disable
Sleep Mode	Option 1: Enable/ Disable Option 2: 10-120mins (per step: 10mins)	Disable
Auto Restart	Enable/ Disable	Enable
Auto Start on AC	Enable/ Disable	Disable



In the Setting Menu, the sub item Option 1 under the item Energy Saving cannot be changed.

## Battery

Setup Item	Selectable Value	Default Value
Automatic Battery Test	From 1 day to 365 days (per step: 1 day)	Disable
Deep Discharge Test	20-90% (per step: 10%) 90%	90%
Low Battery Warning Capacity	0-95% (per step: 5%)	10%
Warning of Remaining Time	0-60mins (per step: 1min)	2mins
Runtime Limitation	Disable/ 1/ 2/ 3.../ 240mins (per step: 1min)	Disable
Charge Mode	2-stage/ 3-stage	2-stage
Internal Charging Current	For 5-7K: 1/ 2/ 3/ 4/ 5/ 6/ 7/ 8A <sup>*1</sup> For 9-11K: 1/ 2/ 3/ 4/ 5/ 6A	1A (5-7K) 2A (9-11K)
External Battery Source <sup>*2</sup>	Standard battery pack/ Customer own batt. pack	Standard battery pack
External Battery Type	Li battery / Lead Acid / Others (custom)	Lead Acid
External Battery Capacity	Li battery: Rated Voltage, Total Capacity Standard battery pack: Model Name, Quantity Customer own batt. pack: Voltage/Qty, Total capacity (1/2/3.../999 Ah, one step: 1Ah)	Standard battery pack: Model Name: B7000 (5-7K) B11000 (9-11K) Quantity: 1
Float Charging Voltage	For Lead-Acid Battery: Option1: Auto/Customize Option2: (2.20 - 2.35 V/cell, one step: 0.01V) For Li-ion Battery or Others: 150 - 310 Vdc, one step: 1V	Auto
EOD Voltage	For Lead-Acid Battery: 9.5-11Vdc/Pcs, one step: 0.1V For Li-ion Battery or Others: 114 - 242 Vdc, one step: 1V	Auto
Install date	YYYY/ MM/ DD	



\*1: Under the condition of rated battery voltage  $\leq 192$ Vdc.



\*2: When the External Battery Source is set as Standard battery pack, you need to configure the Part Number and the Quantity of the standard battery pack(s).

When the External Battery Source is set as Customer own batt. pack, the Part Number and Quantity will be changed accordingly to Battery Voltage and Total Capacity.

## General

Setup Item	Selectable Value	Default Value
Language	English/ 简体中文/ 繁體中文/...	English
Audible Alarm	Enable/ Disable	Enable
LCD Back Light	Always On/ Auto Off	Auto off
Date	YYYY/MM/DD	
Time	HH:MM:SS	

## Power Share Output

The Power Share Output can be set by LocalView software. For more details, please read the LocalView manual or contact the Socomec customer service.

## Dry Contact Setting

Setup items	Selectable value	Default value
Dry Contact 1 - Input	Option 1: Disable/ ROO/ RPO/ Remote shutdown/ Forced bypass/ On generator Option 2: 0-999s (per step: 1 sec) Option 3: Normal open/Normal close	Disable
Dry Contact 2 - Output	Disable/ On bat/ Low bat/ Bat fault/ Bypass/ UPS OK/ Load protected/ Load powered/ General alarm/ Overload alarm / Backfeed	On batt.
Dry Contact 3 - Output	Disable/ On bat/ Low bat/ Bat fault/ Bypass/ UPS OK/ Load protected/ Load powered/ General alarm/ Overload alarm / Backfeed	Low batt.
Dry Contact 4 - Output	Disable/ On bat/ Low bat/ Bat fault/ Bypass/ UPS OK/ Load protected/ Load powered/ General alarm/ Overload alarm / Backfeed	General alarm
Remote Control	Option 1: REPO/ ROO	
	Option 2: Normally open/ Normally closed (For REPO)	Option 2: delay time 0-999sec (step: 1 sec) (For ROO)
		REPO/ NO



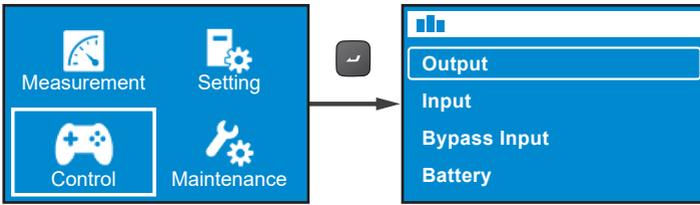
For detailed information about option 1, please contact service personnel.

## Component Life Prediction

Setup Item	Selectable Value	Default Value
Fan Life Prediction	No/ Yes	No

### 9.1.3. Control Menu

In the Main Menu, after selecting , press the button  to enter the Control Menu.



The Control Menu provides commands for enabling specific UPS functions. Please refer to the table below for the setup items and selectable values.

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Control	Output	Bypass* <sup>1</sup>	Go into Bypass	Yes/ No
			Go out of Bypass	Yes/ No
	Charger	Execute Boost Charge	Yes/ No	
	Alarm	Clear Prediction Warning* <sup>2</sup>	Yes/ No	



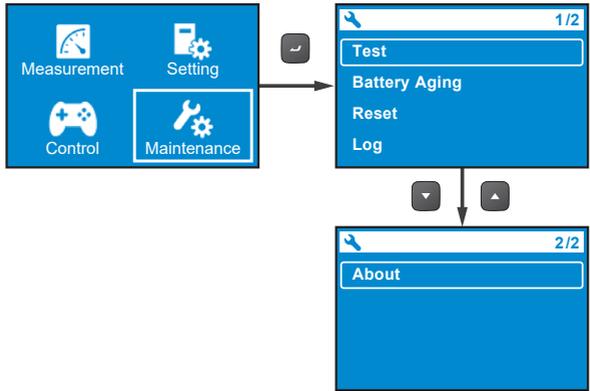
\*1: The item Bypass will be hidden if you set the Standby Mode as Bypass Output. To set up Bypass Output, please go to  → Output → Standby Mode → Bypass Output.



\*2: The item Delay Alarm Again under Control → Alarm → Clear Prediction Warning can be set from 1 week to 52 weeks.

### 9.1.4. Maintenance Menu

In the Main Menu, after selecting  , press the button  to enter the Maintenance Menu.

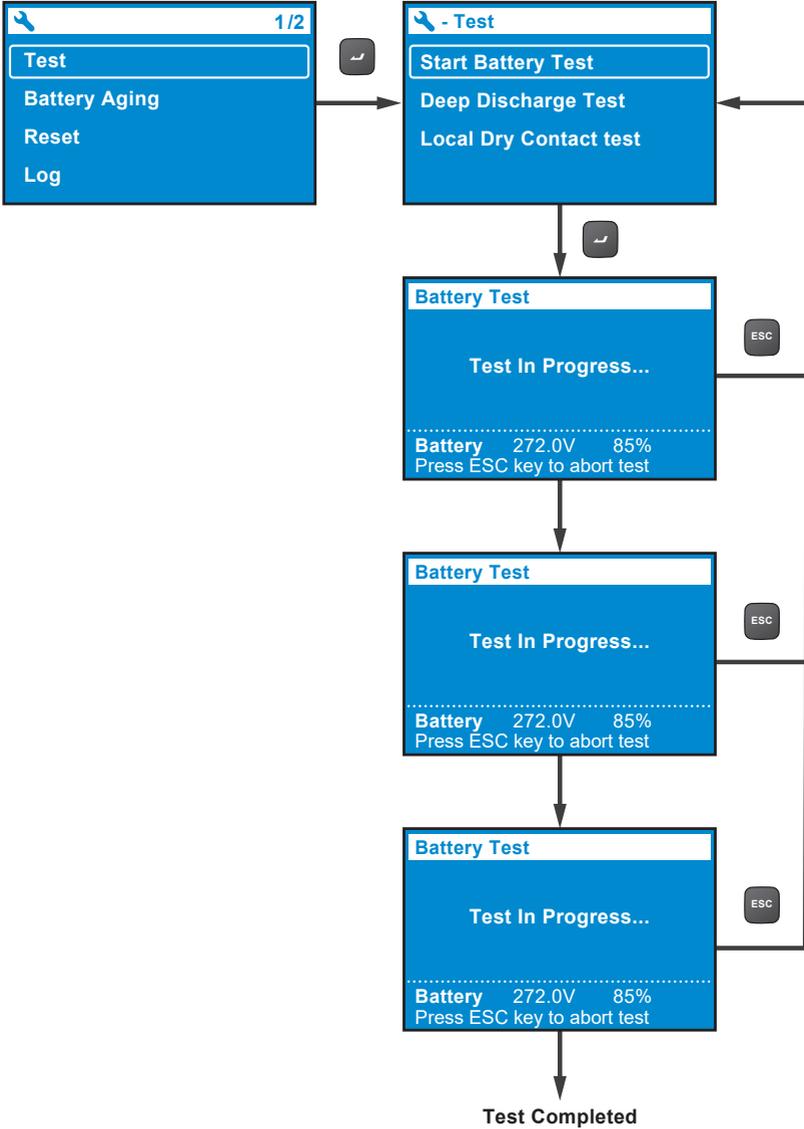


The Maintenance Menu provides commands for enabling UPS maintenance functions. It also provides event logs and UPS identification. Please refer to the table below for the setup items and selectable values.

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Maintenance	Test	Start Battery Test	Test in Progress...	Test Result: Pass
				Test Result: Fail
				Test Result: Not Finished
		Deep Discharge Test	Test in Progress...	Test Result: Pass
				Test Result: Fail
				Test Result: Not Finished
		Local Output Dry Contact Test	Dry Contact 2	Dry Contact 2 In Progress...
			Dry Contact 3	Dry Contact 3 In Progress...
			Dry Contact 4	Dry Contact 4 In Progress...
	Battery Aging	Create Discharging Reference	Yes/ Cancel	
		Discharging History	Item, Output power, Total discharging time	Date/ Time, Average Watts (W), Actual discharging time, Estimated remaining time, Total discharging time
	Reset	Reset Power Usage Data	Yes/ Cancel	
		Restore Factory Setting	Yes/ Cancel	

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Maintenance	Log	Event List	Description, Event code YYYY/MM/DD HH:MM:SS	Error Description
		Clear Log	Yes/Cancel	
	About	Model Name: RT-5K		
		UPS - Serial No. XXXXXXXXXX		
		UPS - Manufacture Date YYYY-MM		
		UPS Firmware – Version XXXXXXX		
		Battery Summary: Installed YYYY/ MM/DD Replace YYYY/ MM/DD		

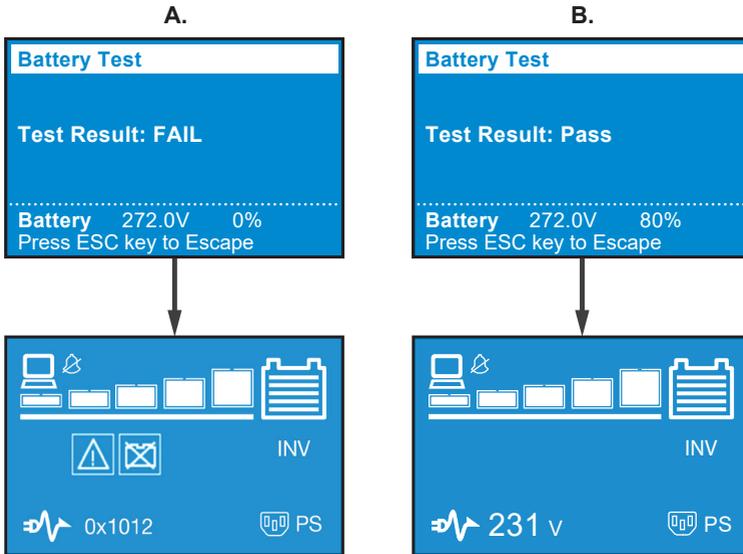
For example, if you need to execute a battery test, please go to Test → Start Battery Test → Test In Progress... → Test Result: Pass (or Fail).



Once the test is completed, the test result will be shown as follows.

A. Test Result\_ Fail: The alarm icon will show in the bottom left of the LCD display.

B. Tests Result\_ Pass: No alarm icon occurs, and the UPS runs normally.



# 10. OPTIONAL ACCESSORIES

There are several optional accessories available for this NETYS RT series UPS. Please refer to the table below for the optional accessories and their functions.

## Options

NRT3-OP-MBP	NETYS RT manual bypass for single unit for 5000VA to 11000VA UPS
NRT3-OP-PMB	NETYS RT parallel module and manual bypass for 1+1 configuration for 5000VA to 11000VA UPS
NRT3-OP-CBL11B	NETYS RT longer battery cable (900mm) for UPS 5000VA to 11000VA
NRT3-OP-CBL11F	NETYS RT extra long battery cable (900mm) 1 side free for special cabinets for UPS 5000VA to 11000VA
NRT-OP-SNMP	NETYS RT WEB/SNMP adapter for slot for NETYS RT UPS
NRT-OP-EMD	NETYS RT environment sensor temperature and humidity and 2 inputs
NRT-OP-REL	NETYS RT relay board for slot 1x input, 6x output programmable relays
NRT-OP-RAIL	NETYS RT 2 runners for rack mounting support maximum 100 kG
NRT3-LIB-1S	NETYS RT Li-ion battery for UPS 5000VA to 11000VA +rail. One string
NRT3-LIB-2S	NETYS RT Li-ion battery for UPS 5000VA to 11000VA +rail. Two strings
NRT3-B7000	NETYS RT BATTERY EXTENSION FOR 9000VA AND 11000VA UPS + rail
NRT3-B11000	NETYS RT BATTERY EXTENSION FOR 9000VA AND 11000VA UPS + rail
NET VISION	Socomec WEB/SNMP adapter for smart slot



For detailed installation and operation of any accessory mentioned above, please refer to the Quick Guide, User Guide, or Installation & Operation Guide included in the package of the relevant optional accessory.



If you want to buy any accessory mentioned above, please contact your local vendor or customer service.

## 10.1. Optional External Battery Pack

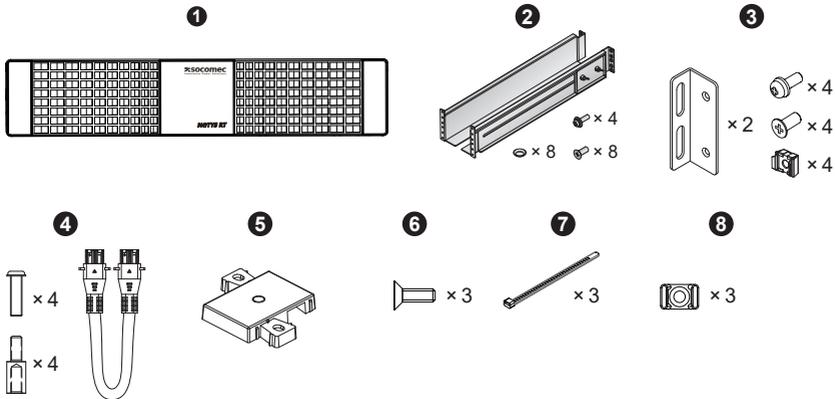
### 10.1.1. Important Safety Instructions



Before proceeding, read the Battery Warnings section (**Chapter 1.1**).

- The external slits and openings in the battery pack are provided for ventilation. To ensure reliable operation of the battery pack and to protect the battery pack from overheating, these slits and openings must not be blocked or covered. Do not insert any object into the slits and openings that may hinder ventilation.
- Do not allow liquid or any foreign object to enter the battery pack.
- Do not place beverages or any other liquid-containing vessels on or near the battery pack.

### 10.1.2. Package List



No.	Item	Quantity
①	Socomec External Battery Pack	1 PC
②	Rail kit	1 PC
③	Bracket Ear	1 SET
④	Battery Cable, Standoff, Screws	1 SET
⑤	Tower Stand Extender	5/7 kVA: 4 PCS 9/11 kVA: 6 PCS
⑥	M4 Screw	3 PCS
⑦	Cable Tie	3 PCS
⑧	Cable Ties Fixing Holder	3 PCS

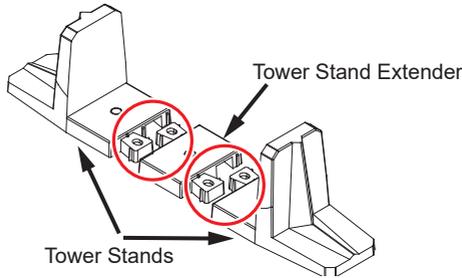
### 10.1.3. Battery Installation Procedures

#### Rack Mounting:

follow the instructions in *6.1.Rack Mounting*, Battery Pack instead of UPS

#### Tower Mounting:

① Connect the provided tower stand extenders with the tower stands provided in the UPS's carton (please take the UPS and the Socomec external battery pack's size into consideration). See *Figure 10-1*.

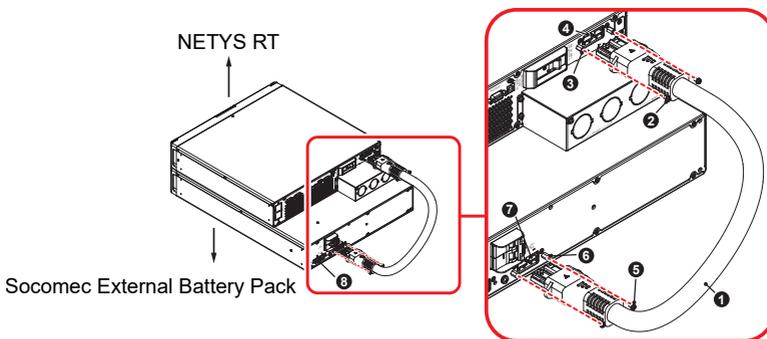


(Figure 10-1: Connect the Tower Stand Extenders with the UPS's Tower Stands)

② to ④ : follow the instructions in *6.2. Tower Mounting*

- Connect the Socomec External Battery Pack with the UPS  
The two models' paralleling methods and UPS connection methods are similar.

① Connect one end of the provided battery cable (①) to the external battery connector (④) on the UPS, and connect the other end to the external battery connector (⑦) on the Socomec external battery pack. Use the provided screws (②) and standoffs (③) to fix the battery cable firmly. Make sure that the positive cable (+) connects to the positive pole (+) and the negative cable (-) connects to the negative pole (-). See *Figure 10-2*.



(Figure 10-2: Connect the UPS and the Socomec External battery pack)



There are two identical external battery connectors (⑦ & ⑧) on the Socomec external battery pack, and you may use either of the battery connectors (⑦ & ⑧) to connect to the UPS.

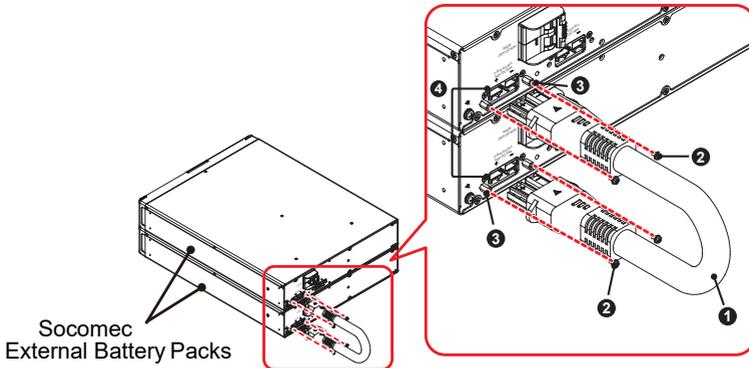
## Parallel the Socomec External Battery Packs

To extend the back-up time, you may parallel the Socomec external battery packs before connecting them to the UPS. The two models' parallel methods are similar.



For parallel application, only use the same type of Socomec external battery packs (same product number).

1 Use the provided battery cable (1) to connect each parallel Socomec external battery pack's battery connector (4). Each Socomec external battery pack has two identical battery connectors; you can choose either of them for connection. Make sure that the positive cable (+) connects to the positive pole (+) and the negative cable (-) connects to the negative pole (-). Use the screws (2) and standoffs (3) (provided in the battery cable's package) to fix the battery cable firmly on the parallel Socomec external battery packs. Please see *Figure 10-3*.



(Figure 10-3)



If you want to connect more than two Socomec external battery packs, follow the steps mentioned above.

2 After paralleling the Socomec external battery packs, follow the steps mentioned in 'Connect the Socomec External Battery Pack the UPS' to complete the connection between the UPS and the parallel Socomec external battery packs.

### 10.1.4. Operation Procedures

- ① Follow the NETYS RT UPS User Manual to execute input/ output connection.
- ② Follow the battery installation procedure to connect the UPS and the Socomec external battery pack(s).
- ③ Turn on every Socomec external battery pack’s breaker and the UPS’s input breaker.
- ④ Follow the NETYS RT UPS User Manual to turn on the UPS.

### 10.1.5. Technical Specifications

Socomec External Battery Pack		NRT3-B7000	NRT3-B11000
Applicable to NETYS RT Series UPS		7 kVA	11 kVA
Battery	Type	VRLA	
	Quantity	16 × 12V/7Ah	20 × 12V/9Ah
Dimensions (W × D × H)		440 × 565 × 89 mm (17.3" × 22.2" × 3.5")	440 × 650 × 131 mm (17.3" × 25.6" × 5.1")
Weight		39 kg (86 lb)	67 kg (147.7 lb)
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	
	Relative Humidity	5 ~ 95% (non-condensing)	

Refer to the rating label for the safety rating.



All specifications are subject to change without prior notification.

Option Manual Bypass for Single UPS & Parallel UPS units.

## 10.2. Manual Bypass Guide

### 10.2.1. Important Safety Instructions

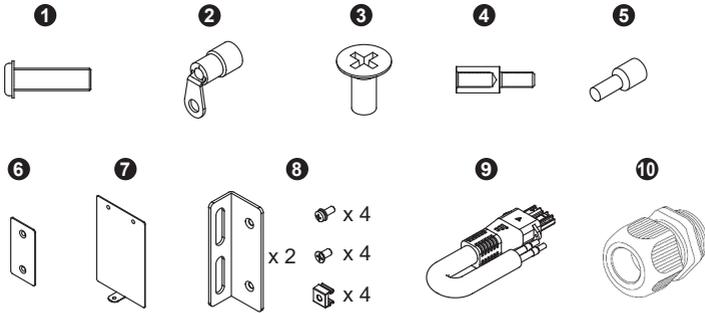


Before proceeding, read the General Warnings section (**Chapter 1.1**).

- Only qualified service personnel can perform installation and maintenance of the Manual Bypass
- The Manual Bypass must operate in conjunction with Socomec NETYS RT series 5 / 7 / 9 / 11 kVA UPS
- Before installation of the Manual Bypass, please completely turn off the UPS and cut off the input power and battery power (if applicable).
- Failure to properly install the Manual Bypass may result in severe damage to your UPS or load equipment.
- Please install the Manual Bypass in an indoor temperature-controlled environment that is free of conductive contaminants.
- Do not operate the unit in an extremely dusty/ unclean area or a location near heating devices, water or excessive humidity. Do not expose the unit to direct sunlight.
- The Manual Bypass must be well grounded due to a possible risk of current leakage.
- The Manual Bypass is not intended for use in direct patient care or life support applications.

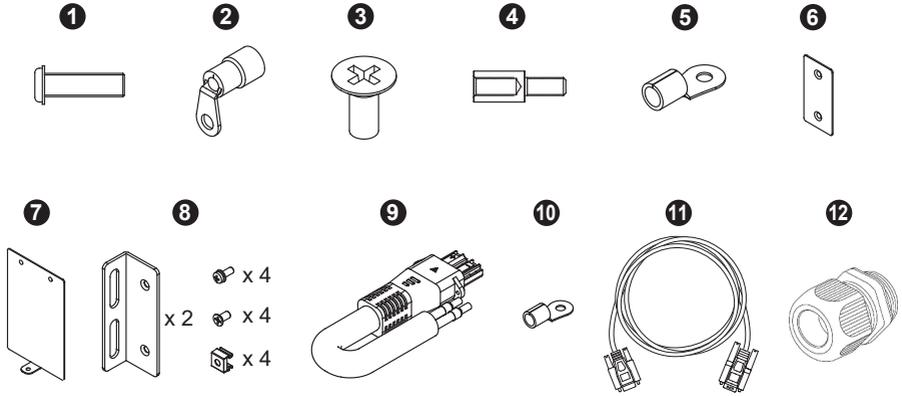
## 10.2.2. Package List

### Model NRT3-OP-MBP Manual Bypass for Single UPS Application



No.	Item	Quantity
1	M3 Screw	4 PCS
2	CU Terminal (Type A)	2 PCS
3	M4 Screw	10 PCS
4	Standoff	4 PCS
5	CU Terminal (Type B)	6 PCS
6	Manual Bypass Ear	1 PC
7	Manual Bypass Ear	1 PC
8	Manual Bypass Ear	1 SET
9	Wire	2 PCS
10	Cable gland	2 PCS

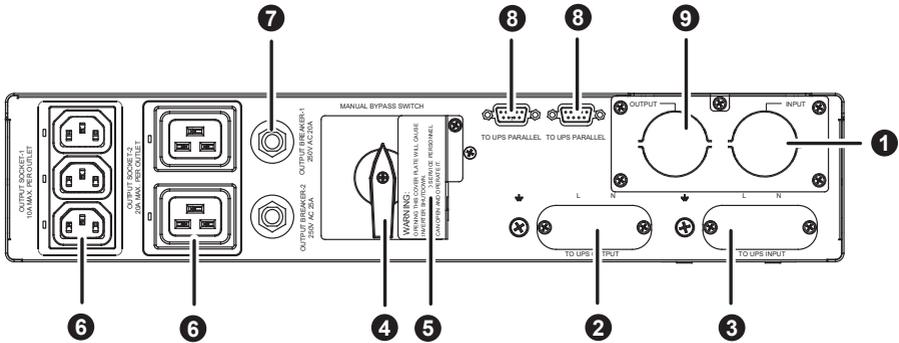
## Model NRT3-OP-PMB Manual Bypass for Parallel UPS Application



No.	Item	Quantity
1	M3 Screw	8 PCS
2	CU Terminal (Type A)	4 PCS
3	M4 Screw	9 PCS
4	Standoff	8 PCS
5	CU Terminal (Type C)	4 PCS
6	Manual Bypass Ear	1 PC
7	Manual Bypass Ear	1 PC
8	Manual Bypass Ear	1 SET
9	Wire	4 PCS
10	CU Terminal (Type D)	2 PCS
11	Parallel Cable	1 PC
12	Cable gland	2 PCS

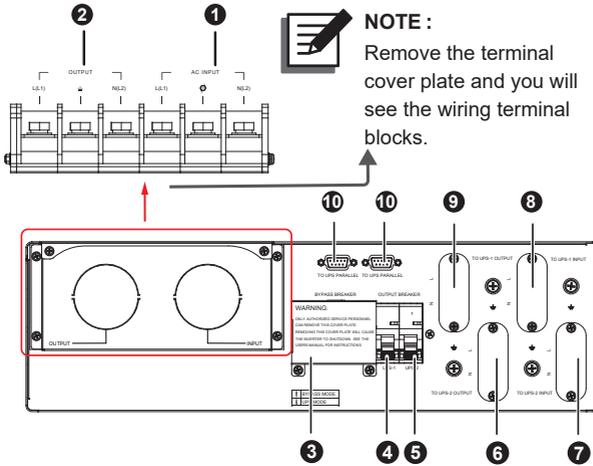
## 10.2.3. Front View

### NRT3-OP-MBP



No.	Item (Printed Words on the Front Panel)	Connection
1	Input	Connects to the main AC utility.
2	To UPS Output	Connects to the UPS's output terminals.
3	To UPS Input	Connects to the UPS's AC input terminals.
4	Manual Bypass Switch	No connection is needed. The function is to switch the UPS into manual bypass mode for maintenance without power supply interruption.
5	Warning (This is a Manual Bypass Switch Cover Plate)	No connection is needed. After you remove the screw shown in <i>Figure 11</i> to remove the cover plate, the MBP's detector will automatically activate and send a message to the UPS to ask it to transfer into bypass mode.
6	Output Socket	Connects to the critical loads.
7	Output Breaker	No connection is needed. The function is to prevent the output socket(s) from damage caused by overload.
8	To UPS Parallel	Connects to the UPS's parallel port.
9	Output	Connects to the critical loads.

# NRT3-OP-PMB

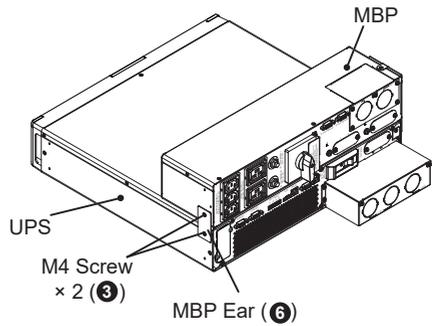


No.	Item (Printed Words on the Front Panel)	Connection
1	AC Input	Connects to the main AC utility.
2	Output	Connects to the critical loads.
3	Bypass Breaker	No connection is needed. After you remove the two screws shown in <i>Figure 15</i> to remove the cover plate, the PMB's detector will automatically activate and send a message to the UPS to ask it to transfer into bypass mode.
4	UPS-1 Output Breaker	No connection is needed. The function is to prevent the output terminals from damage caused by overload.
5	UPS-2 Output Breaker	No connection is needed. The function is to prevent the output terminals from damage caused by overload.
6	To UPS-2 Output (L/ N/ PE)	Connects to the UPS2's UPS Output terminals (L/ N/ PE)
7	To UPS-2 Input (L/ N/ PE)	Connects to the UPS2's AC Input terminals (L/ N/ PE)
8	To UPS-1 Input (L/ N/ PE)	Connects to the UPS1's AC Input terminals (L/ N/ PE)
9	To UPS-1 Output (L/ N/ PE)	Connects to the UPS1's UPS OUTPUT terminals (L/ N/ PE)
10	To UPS Parallel	Connects to the UPS's parallel port.

## 10.2.4. How to Install the Manual Bypass on the Tower Stands

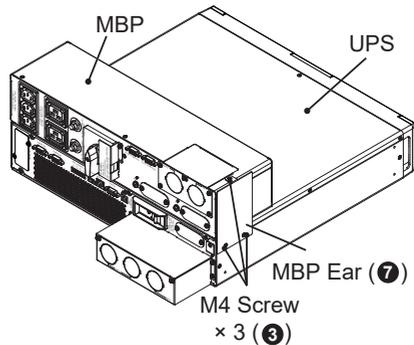
The No. ❶ ~ ❾ shown in *Figure 10-4 ~ Figure 10-13* represent the standard accessories mentioned in §10.1.7 *Package List*.

❶ Fix the MBP Ear (❹) on the left side of the UPS and the MBP with two M4 screws (❸).  
Please see *Figure 10-4*.



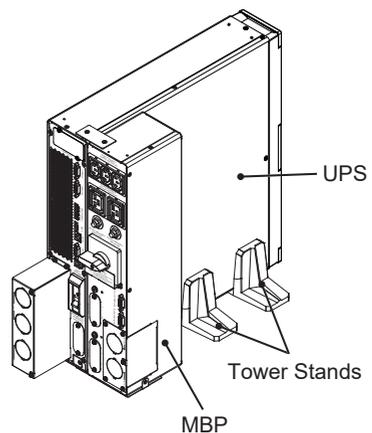
(Figure 10-4)

❷ Fix the MBP Ear (❺) on the right side of the UPS and the MBP with two M4 screws (❸).  
Please see *Figure 10-5*.



(Figure 10-5)

❸ Stand them upright and place them into the tower stands.  
Please see *Figure 10-6*.

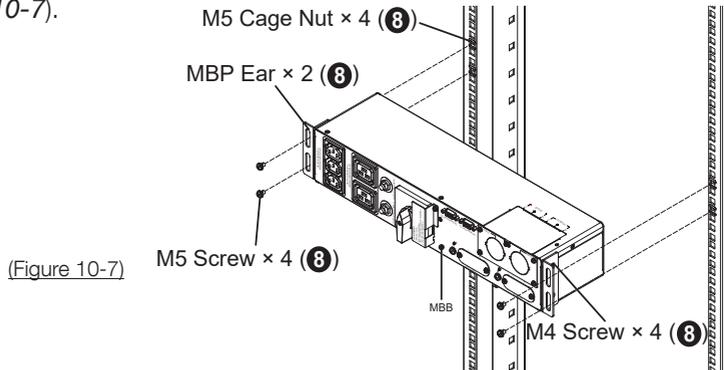


(Figure 10-6)

## 10.2.5. How to Install the Manual Bypass on the Rack

The No. ① ~ ⑪ shown in *Figure 10-4 ~ Figure 10-13* represent the standard accessories mentioned in §10.1.7 *Package List*.

- ① Use the four M4 screws (⑧) to fix the two MBP Ears (⑧) on the left and right sides of the MBP (please see *Figure 4*).
- ② Fix the four M5 cage nuts (⑧) on the two sides of the rack (please see *Figure 4*).
- ③ Use the four M5 screws (⑧) to secure the MBP on the rack's M5 cage nuts (⑧) (please see *Figure 10-7*).



## 10.2.6. Wiring



Before wiring:

1. Follow **§10.1.6 Important Safety Instructions**.
2. When connecting the Manual Bypass to the mains and the loads, you must install protective devices. The protective devices must be approved components that meet safety certifications.
3. Ensure that all of the breakers/ switches are in the OFF position before wiring.
4. Please refer to the following table to select appropriate input cables, output cables and protective devices.

### NRT3-OP-MBP:

Rating	5 / 7 kVA	9 / 11 kVA
Input/ Output Cable	6mm <sup>2</sup> (Cu)	10mm <sup>2</sup> (Cu)
Protective Device	50A/ D	80A/ D

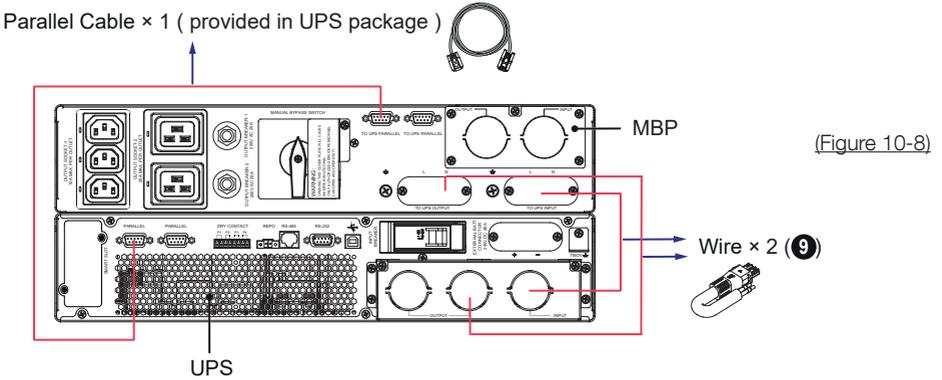
### NRT3-OP-PMB:

Rating	14 kVA	22 kVA
Input/ Output Cable	16mm <sup>2</sup> (Cu)	35mm <sup>2</sup> (Cu)
Protective Device	80A/ D	125A/ D

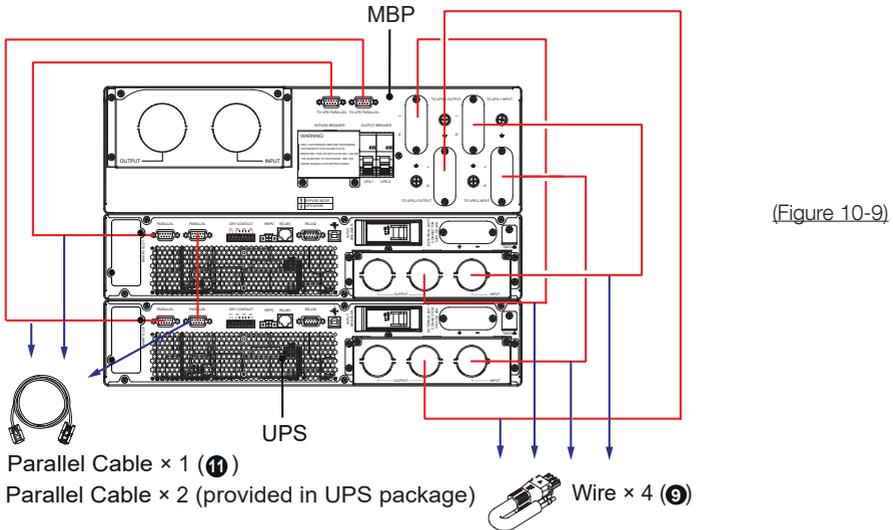
The No. ❶ ~ ❾ shown in *Figure 10-4 ~ Figure 10-13* represent the standard accessories mentioned in §10.1.7 Package List.

❶ Please see *Figure 10-8* and *Figure 10-9* for a general concept of wiring.

### NRT3-OP-MBP

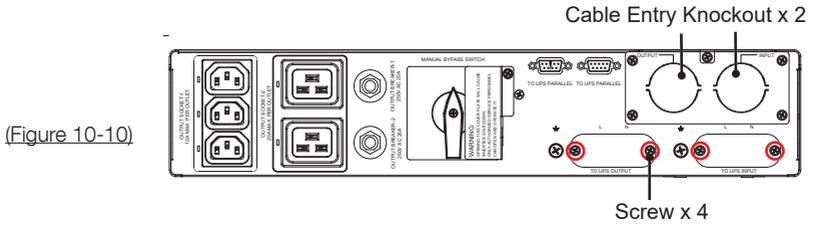


### NRT3-OP-PMB

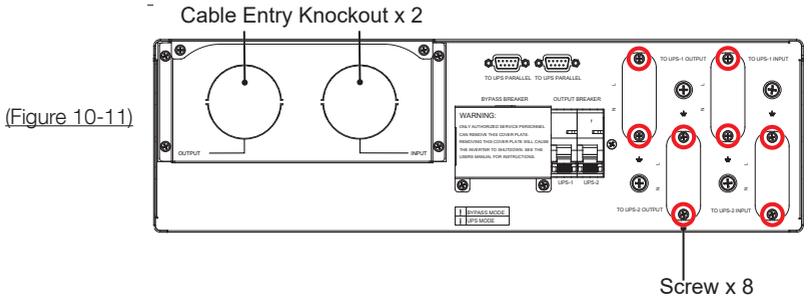


2 Remove all of the screws from the cover plates and the cable entry knockouts shown in *Figure 10-10* and *Figure 10-11*.

### NRT3-OP-MBP

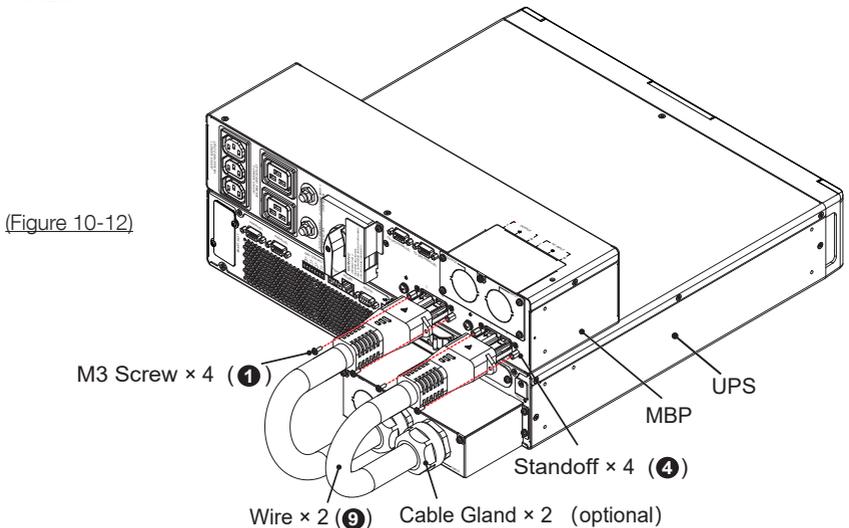


### NRT3-OP-PMB

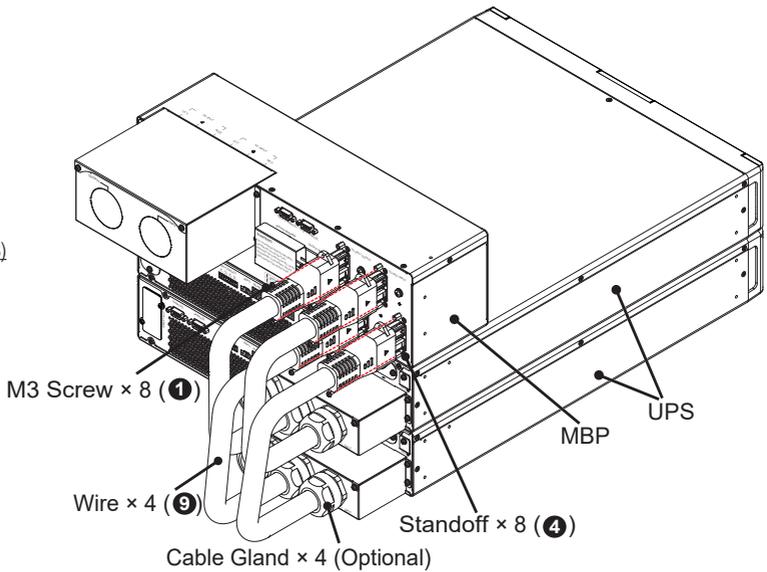


3 Follow *Figure 10-12* and *Figure 10-13* to install the provided accessories on the Manual Bypass and perform wiring. The suggested knockout or hole diameter for optional cable gland is 34.5mm (1-23/ 64 inch).

### NRT3-OP-MBP



(Figure 10-13)



### 10.2.7. Start-up Operation

#### NRT3-OP-MBP

All the equipment and the UPS system must be properly connected and there must be an acceptable AC voltage present. Please refer to the UPS User Manual for more information.

**i** Do not remove the cover plate of the Manual Bypass' MANUAL BYPASS SWITCH during operation.

- 1 Turn on the input utility breaker at the service panel.
- 2 Turn on the Manual Bypass' UPS OUTPUT BREAKER.
- 3 Turn on the circuit breaker on each connected external battery pack.
- 4 Turn on the UPS's INPUT BREAKER. After that, the fans will turn on and the UPS will run in bypass mode.

**i** If there is a power interruption while the UPS is in bypass mode, the connected loads won't be protected.

- 5 Turn on the connected loads.
- 6 Press and hold the UPS's ON/ OFF button for 3 seconds and release it after you hear one beep to turn the UPS on.
- 7 Please refer to the UPS User Manual for more information.

## NRT3-OP-PMB

All the equipment and the UPS system must be properly connected and there must be an acceptable AC voltage present. Please refer to the UPS User Manual for more information.

**i** Do not remove the cover plate of the Manual Bypass' BYPASS BREAKER during operation.

- 1 Turn on the input utility breaker on the service panel.
- 2 Turn on the Manual Bypass' UPS-1 OUTPUT BREAKER.
- 3 Turn on the Manual Bypass' UPS-2 OUTPUT BREAKER.
- 4 Turn on the circuit breaker on each connected external battery pack.
- 5 Turn on the UPS1's INPUT BREAKER. After that, the fans will turn on and the UPS1 will run in bypass mode.
- 6 Turn on the UPS2's INPUT BREAKER. After that, the fans will turn on and the UPS2 will run in bypass mode.

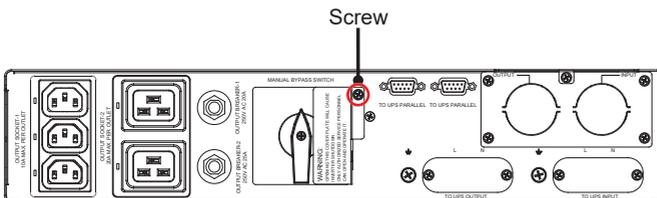
**i** If there is a power interruption while the UPS1 and UPS2 are both in bypass mode, the connected loads won't be protected.

- 7 Turn on the connected loads.
- 8 Press and hold the UPS1's ON/ OFF button for 3 seconds and release it after you hear one beep to turn the UPS1 on.
- 9 Press and hold the UPS2's ON/ OFF button for 3 seconds and release it after you hear one beep to turn the UPS2 on.
- 10 Please refer to the UPS User Manual for more information.

## 10.2.8. Maintenance

### NRT3-OP-MBP

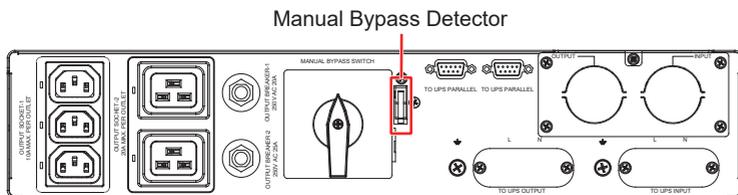
- 1 Press and hold the UPS's ON/ OFF button for 3 seconds, release it after you hear one beep, use the Scrolling Up or Down button to select 'Yes' and press the Enter button to confirm your selection. The inverter will be off and the UPS will transfer to run in bypass mode.
- 2 Remove the screw shown in *Figure 10-14* to remove the cover plate of the MANUAL BYPASS SWITCH.



(Figure 10-14)

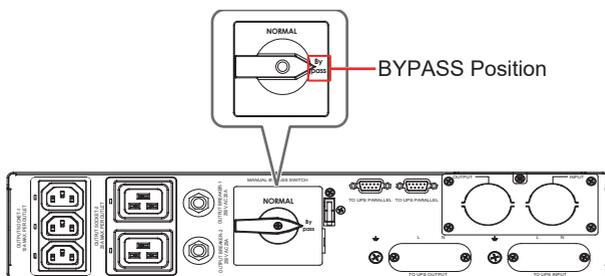


Under the cover plate, there is a manual bypass detector (see *Figure 10-15*) that will be automatically activated to send the UPS a message to transfer to bypass mode once the cover plate is removed.



(Figure 10-15)

3 After you confirm that the UPS is running in bypass mode, switch the Bypass' MANUAL BYPASS SWITCH to the BYPASS position (see *Figure 10-16*). Now, the connected loads are being powered by the utility power.



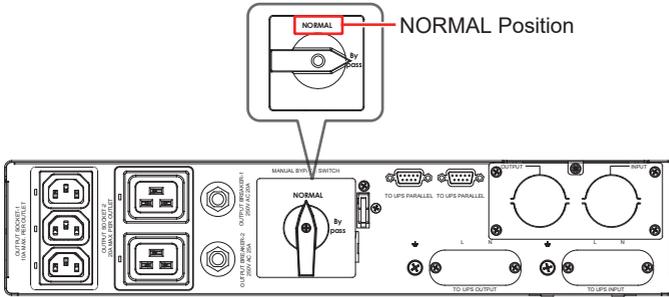
(Figure 10-16)



If there is a power interruption while the MBP is in the bypass mode, the connected loads won't be protected.

- 4 Turn off the UPS's INPUT BREAKER.
- 5 Turn off the circuit breaker on each connected external battery pack.
- 6 Disconnect the battery cables from the UPS and the external battery pack(s).
- 7 Disconnect the power cables from the 'TO UPS INPUT' and 'TO UPS OUTPUT' terminals on the Manual Bypass.
- 8 Disconnect all of the communication cables from the rear panel of the UPS.
- 9 Now, remove the UPS and the external battery pack(s) and perform maintenance.
- 10 Once the maintenance is completed, re-install the UPS and the external battery pack(s).
- 11 Reconnect all of the battery cables, power cables and communication cables.
- 12 Turn on the circuit breaker on each connected external battery pack.
- 13 Turn on the UPS's INPUT BREAKER.
- 14 Turn on the Manual Bypass' UPS OUTPUT BREAKER.

15) Switch the Manual Bypass' MANUAL BYPASS SWITCH to the NORMAL position (see *Figure 10-17*).



(Figure 10-17)

16) Re-install the cover plate of the MANUAL BYPASS SWITCH on the Manual Bypass. This will automatically inactivate the manual bypass detector.

17) Press and hold the UPS's ON/ OFF button for 3 seconds and release it after you hear one beep to turn the UPS on.

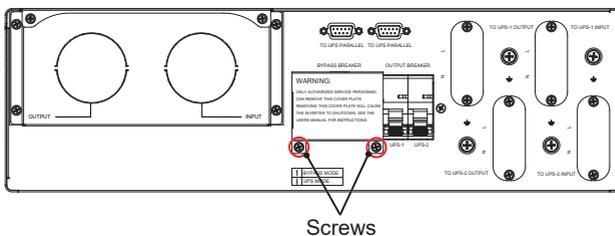
18) The UPS system is ready for normal operation. Please refer to the UPS's user manual for more information.

### NRT3-OP-PMB

1) Press and hold the UPS1's ON/ OFF button for 3 seconds, release it after you hear one beep, use the Scrolling Up or Down button to select 'Yes' and press the Enter button to confirm your selection. The inverter will be off and the UPS1 will transfer to run in bypass mode.

2) Press and hold the UPS2's ON/ OFF button for 3 seconds, release it after you hear one beep, use the Scrolling Up or Down button to select 'Yes' and press the Enter button to confirm your selection. The inverter will be off and the UPS2 will transfer to run in bypass mode.

3) Remove the screws shown in *Figure 10-18* to remove the cover plate of the BYPASS BREAKER.

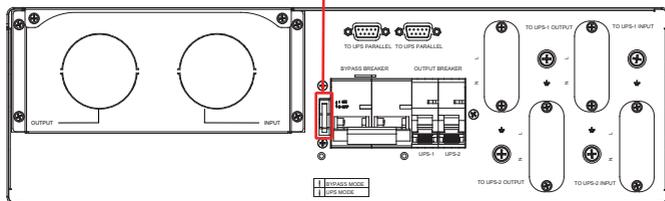


(Figure 10-18)



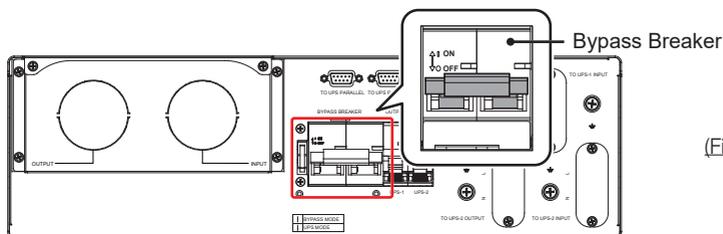
Under the cover plate, there is a manual bypass detector (see *Figure 10-19*) that will be automatically activated to send the UPS a message to transfer to bypass mode once the cover plate is removed.

### Manual Bypass Detector



(Figure 10-19)

4 After you confirm that both of UPS1 and UPS2 are running in bypass mode, switch the Manual Bypass' **BYPASS BRAKER** to the ON position. The ON/ OFF printing is marked on the **BYPASS BREAKER** (see *Figure 10-20*). Now, the connected loads are being powered by the utility power.



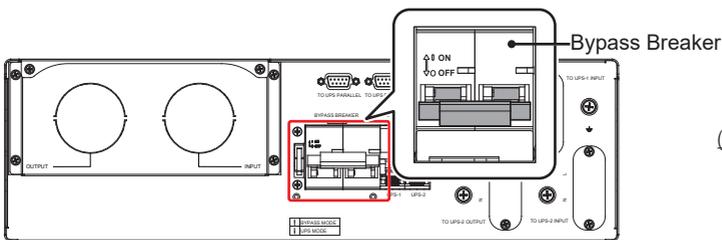
(Figure 10-20)



If there is a power interruption while the PMB is in bypass mode, the connected loads won't be protected.

- 5 Turn off the UPS1's INPUT BREAKER.
- 6 Turn off the UPS2's INPUT BREAKER.
- 7 Turn off the circuit breaker on each connected external battery pack.
- 8 Turn off the Manual Bypass' UPS-1 OUTPUT BREAKER.
- 9 Turn off the Manual Bypass' UPS-2 OUTPUT BREAKER.
- 10 Disconnect the battery cables from the UPS1 and the external battery pack(s).
- 11 Disconnect the battery cables from the UPS2 and the external battery pack(s).
- 12 Disconnect the power cables from the 'TO UPS-1 INPUT' and 'TO UPS-1 OUTPUT' terminals on the Manual Bypass.
- 13 Disconnect the power cables from the 'TO UPS-2 INPUT' and 'TO UPS-2 OUTPUT' terminals on the Manual Bypass.
- 14 Disconnect all of the communication cables from the rear panel of the UPS1 and UPS2.
- 15 Now, remove UPS1, UPS2 and the external battery pack(s) and perform maintenance.

- 16) Once the maintenance is completed, re-install UPS1, UPS2 and the external battery pack(s).
- 17) Reconnect all of the battery cables, power cables and communication cables.
- 18) Turn on the circuit breaker on each connected external battery pack.
- 19) Turn on the UPS1's INPUT BREAKER.
- 20) Turn on the UPS2's INPUT BREAKER.
- 21) Turn on the Manual Bypass' UPS-1 OUTPUT BREAKER.
- 22) Turn on the Manual Bypass' UPS-2 OUTPUT BREAKER.
- 23) Switch the Manual Bypass' BYPASS BREAKER to the OFF position. The ON/ OFF printing is marked on the BYPASS BREAKER (see *Figure 10-21*).



(Figure 10-21)

- 24) Re-install the cover plate of the BYPASS BREAKER on the Manual Bypass. This will automatically inactivate the manual bypass detector.
- 25) Press and hold the UPS1's ON/ OFF button for 3 seconds and release it after you hear one beep to turn the UPS1 on.
- 26) Press and hold the UPS2's ON/ OFF button for 3 seconds and release it after you hear one beep to turn the UPS2 on.
- 27) The UPS system is ready for normal operation. Please refer to the UPS User Manual for more information.



If you encounter any problems that you cannot solve, please ask your local vendor or customer service for more information. Do not attempt to solve the problems if you are not trained for it.

## 10.2.9. Technical Specifications

<u>Model No.</u>		<u>NRT3-OP-MBP</u>	<u>NRT3-OP-PMB</u>
Input	Nominal Voltage	200/ 208/ 220/ 230/ 240 Vac	
	Frequency	50/ 60Hz	
	Current (Max.)	63A	125A
	Connection	Terminal Block	
Output	Nominal Voltage	200/ 208/ 220/ 230/ 240 Vac	
	Frequency	50/ 60Hz	
	Power (Max.)	11kVA/ 10kW	22kVA/ 20kW
	Connection	Terminal block x 1, C13 x 3, C19 x 2	Terminal block x 1
Environment	Operating Altitude	0 ~ 3000 m (0 ~ 10000 ft); 0 ~ 1000 m (0 ~ 3300 ft) (without derating)	
	Operating Temperature	0°C ~ 55°C*1 (32 ~ 131°F)	
	Storage Temperature	-15°C ~ 55°C (-59 ~ 131°F)	
	Relative Humidity	5 ~ 95% (non-condensing)	
Physical	Dimensions (W x D x H)	440 x 120 x 89 mm (17.3" x 4.7" x 3.5")	440 x 120 x 131 mm (17.3" x 4.7" x 5.1")
	Weight	3 kg (6.6 lb)	5.6 kg (12.3 lb)

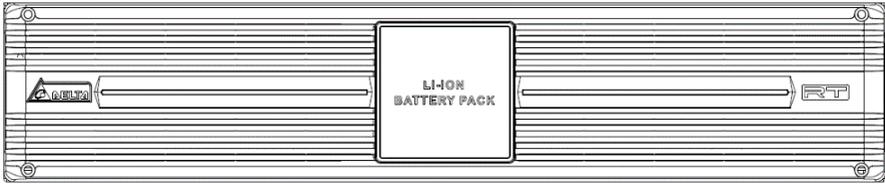


1. \*1: When the operating temperature is at 40 ~ 55°C (104 ~ 131°F), the MBP will be de-rated to 75% of its capacity.
2. Refer to the rating label for the safety rating.
3. All specifications are subject to change without prior notification.

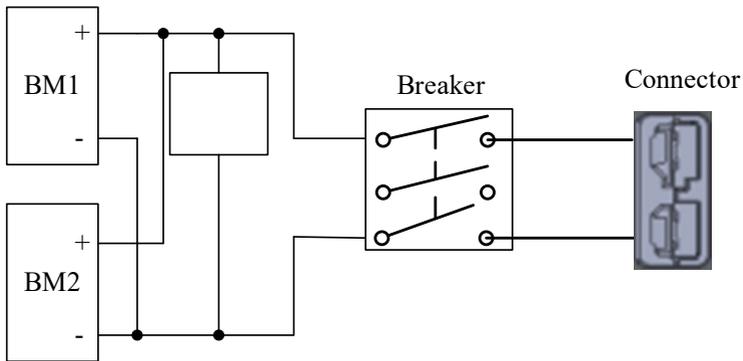
## 10.3. Lithium-ion battery module

### 10.3.1. Product Introduction

The lithium-ion battery pack provides DC power and maintains inverter operation to supply stable power to the critical loads connected to the UPS when the main AC source is abnormal. It must operate in conjunction with a corresponding Socomec Netys RT series UPS model. Please see *Figure 10-22* and *Figure 10-23* to check its appearance and block diagram.



(Figure 10-22: Front View of the Lithium-ion Battery Pack)



(Figure 10-23: Block Diagram)

## 10.3.2. Important Safety Instructions

### Safety Instructions

- The two figures below indicate that there is high voltage circuit inside. Do not open the cover of the lithium-ion battery pack.



- The operation temperature for Li-ion battery EBC is 0-45°C.
- The UPS will shut down if the temperature goes up to 80°C when discharging and it will restart automatically when utility recover. The EBC will resume when the temperature is below 60°C.
- Please not that the battery will stop charging when the temperature reaches 50°C and will resume charging when the temperature is below 50°C. During this time, the UPS can run as usual.

### Standard Compliance

- CE
- CAN/ UL1973

### Storage

- Prior to installation

If the lithium-ion battery pack needs to be stored prior to installation, it should be placed in a dry area. The allowable storage temperature and relative humidity (non-condensing) are -15°C ~ +50°C (5°F ~ 122°F) and 5 ~ 95% respectively.

- After usage

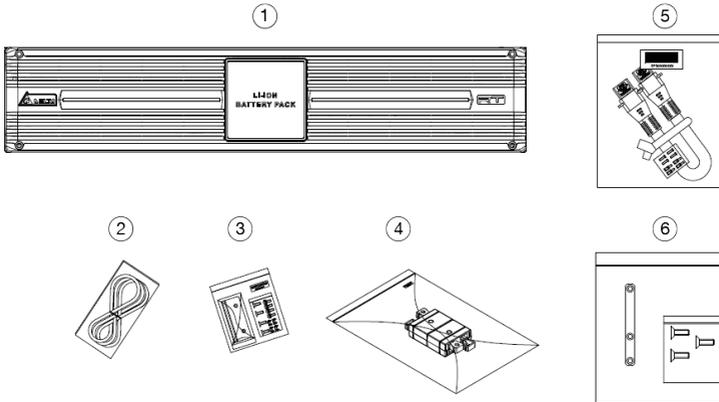
Remove all connected devices from the lithium-ion battery pack, and store the lithium-ion battery pack in a dry and well-ventilated area at a temperature between -15°C and +50°C (5°F ~ 122°F) and at a relative humidity (non-condensing) between 5 ~ 95%.

### Recycling and Disposal

- Please follow the local and/or national regulations when recycling or disposing of the lithium-ion battery pack.

### 10.3.3. Package List

The package contains the following items. Please check if any item is missing. If there is anything missing, please contact the vendor immediately.



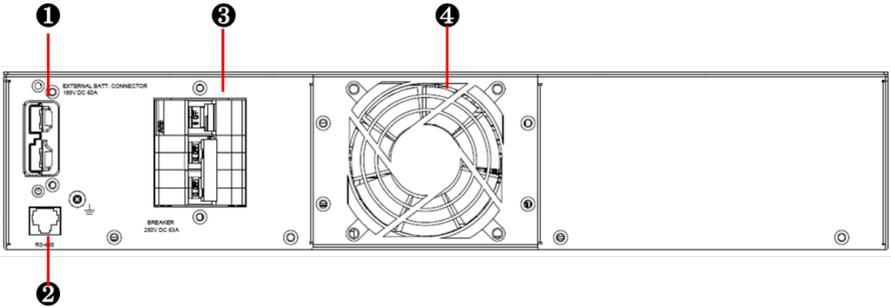
No.	Item	Quantity
①	Lithium-ion Battery Pack (Model: RT-10K-LIB)	1 pc
②	RS-485 Cable	1 pc
③	Bracket Ear Kit	1 set
④	Tower Stand Extender	4 pcs
⑤	Battery Cable	1 pc
⑥	Grounding kit	1 pc



1. If there is any damage or anything missing, please immediately contact the vendor from whom you purchased the unit.

2. If the battery pack needs to be returned, carefully repack the battery pack and all of the accessories using the original packing materials that came with the battery pack.

### 10.3.4. Rear Panel



(Figure 10-24: Rear View of RT-10K-LIB)

No.	Item	Function
1	External Battery Connector	Connects with the UPS to supply battery power. The Pin assignment of the external battery connector is shown as follows. <div style="text-align: center;">  <p>—Battery Positive</p> <p>—Battery Negative</p> </div>
2	RS-485 Port	The lithium-ion battery pack communicates with the UPS via the RS-485 port.
3	Breaker	Serves as a switch for safety protection.
4	Fan	Ventilates the air to avoid overheating.

## 10.3.5. Installation Procedures

### Rack Mounting

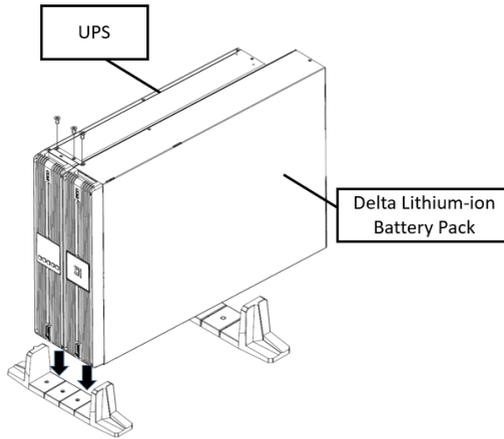
Please follow the rack mounting procedure in *10.1.3. Battery Installation Procedures*

### Tower Mounting

Please follow the tower mounting procedure in *10.1.3. Battery Installation Procedures*



Please tighten the provided screws to install the grounding kit to connect to UPS for grounding. See *Figure 10-25*.

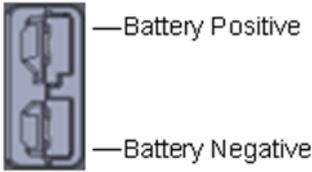


(Figure 10-25)

### 10.3.6. Connection

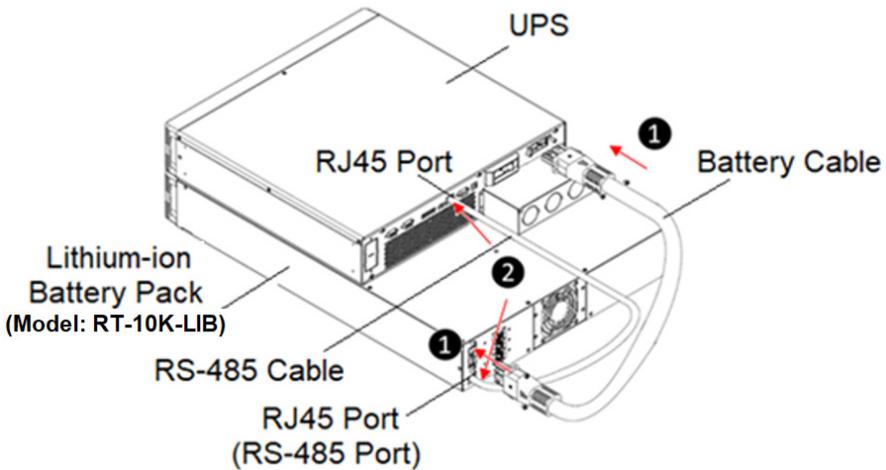
#### Connection of the Lithium-ion Battery Pack with its Corresponding UPS

1. Connect one end of the provided battery cable to the external battery connector on the UPS, and connect the other end to the external battery connector ( ) on the lithium-ion battery pack. Make



sure that the positive cable (+) connects to the positive pole (+) and the negative cable (-) connects to the negative pole (-). See step 1 in Figure 10-26.

2. Use the provided RS-485 cable to connect the UPS's RJ45 (RS-485) port and the RJ45 (RS-485) port of the lithium-ion battery pack. Please see step 2 in Figure 10-26.

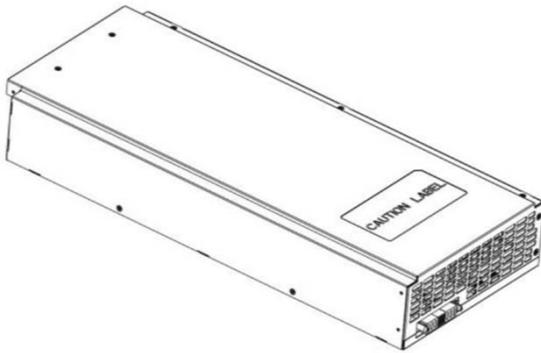


(Figure 10-26: Connection LIB with the UPS)

### 10.3.7. Installation of Lithium-ion Battery Module



1. The lithium-ion battery module is optional. Please see *Figure 10-27* for its appearance.
2. One or two lithium-ion battery modules are required, depending on the discharging time you need.



(Figure 10-27: Lithium-ion Battery Module)

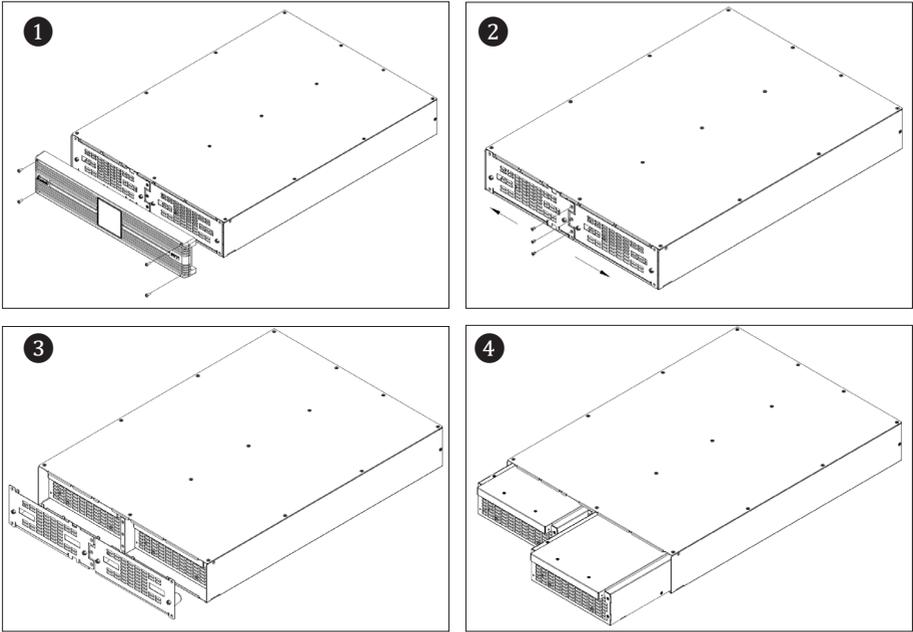
To install the lithium-ion battery module in the lithium-ion battery pack, please follow the steps ① to ④ shown in *Figure 10-28*.

Step ① : Remove the screws and remove the battery pack's front bezel.

Step ② : Use the Phillips screwdriver to remove the screws on the protective cover on front of the battery module.

Step ③ : Remove the protective cover.

Step ④ : Extract the used battery module from the left battery compartment and then insert a new one.



(Figure 10-28: Install the Lithium-ion Battery Module(s))



1. Follow the same procedures to replace the battery module in the right battery compartment with a new one, and reassemble the battery pack in reverse order of the above-mentioned steps, which is ④ → ③ → ② → ① shown in *Figure 7-2*.

2. If the Socomec Manual Bypass is installed behind the lithium-ion battery pack, please keep the Manual Bypass away from the lithium-ion battery pack by at least 1 cm (0.39").

3. If you install two lithium-ion battery modules and there is any fault in one of the two modules, it is suggested that you replace both of the modules at the same time.

### 10.3.8. Operation Procedures

1. Follow Chapter *10.3.6: Connection* to connect the UPS and the lithium-ion battery pack.
2. After making sure that the UPS and the lithium-ion battery pack have been firmly connected with the provided battery cable and RS-485 cable, turn on the lithium-ion battery pack's breaker and the UPS's input breaker.
3. Follow the NETYS RT Series UPS's User Manual to turn on the UPS.



After usage, you can turn off the lithium-ion battery pack safely by following the steps below:

- Step **1** : Turn off the lithium-ion battery pack's breaker.
- Step **2** : Disconnect the provided RS-485 cable.
- Step **3** : Disconnect the provided battery cable.

### 10.3.9. Maintenance

It is recommended that you follow the following maintenance items and intervals to ensure the reliability and efficiency of the lithium-ion battery pack.

1. Check the State of Capacity every week via the LCD on the UPS.
2. Check the State of Health (SOH) every 3 months (i.e. perform a deep discharge test). If the SOH is lower than 30%, please replace the lithium-ion battery module.
3. Check the air flow every month.

### 10.3.10. Technical Specifications

Battery Type		NMC
Battery Module Rated Capacity		4.4 Ah
Max. Discharging Power		1 battery module: 11kW
		2 battery modules: 22kW
Nominal Voltage		189 Vdc
Nominal Current		60A
Connection		Battery connector
Breaker		63A, ± 250 Vdc 3P
Charging	Max. Charging Voltage	216 Vdc
	Max. Charging Current	5.7A
Communication Interfaces		RJ45 (RS-485) Port x1
Physical	Dimensions (W x D x H)	External battery pack: 440 x 646 x 89 mm (17.3" x 25.5" x 3.5")
		Battery module: 212 x 506 x 76.8 mm (8.3" x 19.9" x 3.0")
	Weight	External battery pack with 2 battery modules: 37.7 kg (83 lb) External battery pack with 1 battery module: 12.0 kg (26.5 lb)
Environment	Operating Altitude	0 ~ 3000 m (0 ~ 10000 ft); 0 ~ 1000 m (0 ~ 3300 ft) (without derating)
	Operating Temperature	0°C ~ 45°C (32°F ~ 113°F)
	Storage Temperature	-15°C ~ 50°C (-59°F ~ 122°F)
	Relative Humidity	5% ~ 95% (non-condensing)

# 11. TROUBLESHOOTING

1. When a problem occurs, please check if the following situations exist before contacting Socomec service personnel:
  - Is the main input voltage present?
2. Please have the following information ready if you would like to contact the Socomec service personnel:
  - Unit information including model, serial number, etc.
  - An exact description of the problem. The more detailed description of the problem, the better.
3. When the following problems occur, please refer to the solutions shown below.

<u>Error Code</u>	<u>Alarm Message</u>	<u>Possible Cause</u>	<u>Solution</u>
OX61C1	Input Fuse Open	The input fuse has blown or the input relay is open.	Please contact service personnel.
OX60C0	PFC Soft Start Fail	The UPS has an internal fault.	Please contact service personnel.
OX6221 OX6241	DC Bus Over Shutdown	1. The output has capacitive or inductive loads. 2. The UPS has an internal fault.	1. Remove the capacitive or inductive loads. 2. Please contact service personnel.
OX62A0 OX62C0	DC Bus Under Shutdown	The UPS has an internal fault.	Please contact service personnel.
OX1200	INV Volt Abnormal	The UPS has an internal fault.	Please contact service personnel.
OX1101	Output Overload Shutdown	The UPS is overloaded.	Check the power consumption of the loads, and remove the unnecessary loads.
OXA000	Charger Fault	The UPS has an internal fault.	Please contact service personnel.

<u>Error Code</u>	<u>Alarm Message</u>	<u>Possible Cause</u>	<u>Solution</u>
0X8106	INV IGBT Over Heat Shutdown	1. The vents are blocked. 2. The UPS has an internal fault.	1. Check whether the vents are blocked. 2. Contact service personnel.
0X6100	PFC Over Heat Shutdown	1. The vents are blocked. 2. The UPS has an internal fault.	1. Check whether the vents are blocked. 2. Contact service personnel.
0X1003	Battery Disconnected	1. The UPS is not properly connected to the external battery pack(s). 2. The battery/ batteries is (are) damaged.	1. Check whether the UPS is properly connected to the external battery pack(s). 2. Contact service personnel.



If all possible causes are eliminated but the alarm still appears, please contact your local vendor or customer service.

### 3. Error code on display and event list.

<u>Error Code</u>	<u>Alarm Message</u>
0x0100	Mains Input Volt Out Range
0x0120	Mains Input Freq Out Range
0x0121	Input relay short
0x0122	Input Fuse Open
0x0277	Bypass relay Fault
0x02B0	Bypass Over Current
0x1001	Battery End Of Discharge
0x1002	Battery Over Charged
0x1003	Battery Disconnected
0x1004	Battery Life time Expired
0x1005	Battery Reversed
0x1012	Battery Test Fail
0x1013	Battery Test In Progress
0x1030	Li-ion Battery Over Volt Warning
0x1031	Li-ion Battery Under Volt Warning

Error Code	Alarm Message
0x1032	Li-ion Battery OverTemperature Warning
0x1033	Li-ion Battery Under Temperature Warning
0x1034	Li-ion Battery Over Current Warning
0x1061	Li-ion Battery BM#1 Hardware Abnormal
0x1062	Li-ion Battery BM#2 Hardware Abnormal
0x1101	Output Overload Shutdown
0x1109	Output Short Circuit
0x1200	INV Volt Abnormal
0x2300	System Fan 1 Fault
0x2301	System Fan 2 Fault
0x2502	Unbalance Inverter current sharing for PM
0x2503	Parallel Unit Config Incompatible
0x2504	EXT Parallel Comm Loss
0x2505	Redundancy Loss
0x2508	Inter System Sync Signal Loss
0x250C	Main Input Backfeed Fault
0x2514	System Ambient Over Temperature Shutdown
0x2600	Manual OFF
0x2601	Manual ON
0x2608	AUTO START UPS
0x3100	Remote INV ON
0x3101	Remote INV OFF
0x3102	Remote Schedule Shutdown (Regular form command)
0x3103	Remote Schedule Reboot (Regular form command)
0x3104	Remote ROO On
0x3105	Remote ROO off
0x3200	Emergency PWR Off - REPO Active
0x5001	Load on manual bypass
0x5002	Load on Bypass
0x5003	Load on Battery
0x5004	On Line
0x5005	No Output
0x5006	Load on ECO
0x5008	In Forced Bypass
0x501F	UPS Soft Start

Error Code	Alarm Message
0x60C0	PFC Soft Start Fail
0x6100	PFC Over Heat Warning
0x6102	PFC Over Heat Shutdown
0x6119	PFC Rectifier Over Heat Warning
0x61C1	Mains Input Fuse Open
0x6200	Recover from PFC DC Bus Over Warning
0x6221	PFC DC Bus Over Shutdown
0x6241	PFC DC Bus Over Shutdown
0x62A1	PFC DC Bus Under Shutdown
0x62C0	Recover from PFC DC Bus Under Warning
0x62C1	PFC DC Bus Under Shutdown
0x80C0	INV Soft Start Fail
0x8106	INV IGBT Over Heat Shutdown
0x857F	INV Over Current Shutdown
0x8580	INV Over Current Shutdown - Hardware Over Current
0x8673	Output relay fault
0xA000	Charger Fault
0xA00B	Charge Abnormal
0xA082	Charger Output Switch Abnormal
0xA101	Charger Over Heat Shutdown
0xA200	DC Converter Soft Start Fail
0xA281	Battery Abnormal - Under Volt
0XA403	Battery setting fault
0X6B01	BMS Communication Loss

# 12. MAINTENANCE

## 12.1. UPS

### UPS Cleaning

Regularly clean the UPS, especially the slits and openings, to ensure that the air freely flows into the UPS to avoid overheating. If necessary, use an air blaster to clean the slits and openings to prevent any object from blocking or covering these areas.

### UPS Regular Inspection

Regularly check the UPS every half year and inspect:

- Whether the UPS, LEDs, and alarm function are operating normally.
- Whether battery voltage is normal. If battery voltage is too high or too low, find the root cause.

## 12.2. Batteries

The NETYS RT series UPS uses lead-acid or lithium-ion batteries. Though the typical battery life cycle is 3~5 years, the battery life depends on the temperature, usage, and charging/ discharging frequency. High temperature environments and high charging/ discharging frequency will quickly shorten the battery life. The batteries do not require user maintenance; however, they should be checked periodically. Please follow the suggestions below to ensure a normal battery lifetime.

- Keep the usage temperature at 20°C ~ 25°C.
- Idle batteries must be fully recharged every three months if the UPS needs to be stored for an extended period of time. Please fully charge the batteries until the battery capacity percentage shown on the LCD on the UPS is 100% ()



If the UPS's batteries need to be replaced, please contact qualified service personnel. During battery replacement, the loads connected to the UPS will not be protected if input power fails.

## 12.3. Fans

Higher temperatures shorten fan life. When the UPS is running, please periodically check if each fan works normally and make sure if the ventilation air can move freely around and through the UPS. If not, contact service personnel to replace the fans.



Please ask your local vendor or customer service for more maintenance information. Do not perform maintenance if you are not trained for it.

## 13. TECHNICAL SPECIFICATIONS

Model		RT-5K	RT-7K	RT-9K	RT-11K
Power Rating		5kVA/5kW	7kVA/6kW	9kVA/8kW	11kVA/10kW
Waveform		Pure Sinewave			
Input	Nominal Voltage	200/208/220/230/240 Vac			
	Voltage Range	175 ~ 280Vac (100% load); 100 ~ 175Vac (50% ~ 100% load)			
	Frequency	50/60 Hz $\pm$ 10 Hz*1			
	Power Factor	0.99 (full load)			
	iTHD	< 3% (linear load)			
	Connection	Terminal Block			
	Electrical input supply system	TT, TN			
Output	Voltage	200/208/220/230/240 Vac			
	Voltage Regulation	$\pm$ 1% (linear load)			
	Frequency	50/60 Hz $\pm$ 0.05 Hz			
	vTHD	<2% (linear load)			
	Overload Capacity	< 105%: continuous; 105% ~ 125%: 2 minutes; 125% ~ 150%: 30 seconds; >150%, 500 ms			
	Crest Factor	3:1			
	Connection	Terminal Block $\times$ 2			
	Electrical output supply system	TT, TN			
Battery & Charger	Battery Voltage	144*2, 192 ~ 264 Vdc adjustable Default: 192 Vdc		144*2, 192 ~ 264 Vdc adjustable Default: 240 Vdc	
	Battery Type	Lead-acid battery or Lithium-ion battery			
	Charging Current	Up to 8A			
	Electrical battery supply system	TT, TN			
Efficiency	Online Mode	Up to 95.5%			
	ECO Mode	Up to 98%			
Audible Noise		52 dBA		55 dBA	

Model		RT-5K	RT-7K	RT-9K	RT-11K
Display		LED indicators and LCD display			
Communication Interfaces		SMART Slot × 1, RS-232 Port × 1, USB Port × 1, Parallel Port × 2, REPO/ROO × 1, RS-485 Port × 1, Dry Contact × 4 (Out: 250V 8A resistive load)			
Physical	Dimensions (W × D × H)	440 × 430/ 508 <sup>*3</sup> × 89 mm (17.3 × 16.9/ 20 × 3.5 inch)		440 × 565/ 643 <sup>*3</sup> × 89 mm (17.3 × 22.2/ 25.3 × 3.5 inch)	
	Weight	11 kg (24.2 lb)	12 kg (26.4 lb)	16 kg (35.2 lb)	17 kg (37.5 lb)
Environment	Operating Altitude	0 ~ 3000 m (0 ~ 10000 ft); 0 ~ 1000 m (0 ~ 3300 ft) (without derating)			
	Operating Temperature	0°C ~ 55°C <sup>*4</sup> (32 ~ 131°F)			
	Storage Temperature	-15°C ~ 55°C (-59 ~ 131°F)			
	Relative Humidity	5% ~ 95% (non-condensing)			
Standard Compliance		CE / TUV GS / EN IEC 62040-1, EN IEC 62040-2, Category C2			



\*1: In free running mode the UPS needs to be de-rated to 70% of its capacity.



\*2: The UPS needs to be de-rated to 70% of its capacity.



\*3: The latter value of UPS depth is measured including its terminal block.



\*4: When the operating temperature is at 40 ~ 55°C (104 ~ 131°F), the UPS will be de-rated to 75% of its capacity.



Please refer to the rating label for the safety rating.



All specifications are subject to change without prior notice.

# 14. APPENDIX: TOXIC AND HAZARDOUS SUBSTANCES AND ELEMENTS

- 有毒有害物质或元素的名称及其含量表

依照中国《电子信息产品污染控制管理办法》

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr 6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属外壳	○	○	○	○	○	○
塑料外壳	○	○	○	○	○	○
印刷电路板	X	○	○	○	○	○
插座	○	○	○	○	○	○
电缆及配线	X	○	○	○	○	○
连接器及断路器	X	○	○	○	○	○
密封铅酸电池	○	○	○	○	○	○
变压器	○	○	○	○	○	○
其它	X	○	○	○	○	○

○：表示该有毒物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X：表示该有毒物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。



注：印刷电路板：包含空的印刷电路板及其上面所有零部件。

有害物质	MCV
Pb, Hg, Cr6+, PBB, PBDE	1000 PPM
Cd	100 PPM

依照中国《电子信息产品污染控制管理办法》(第 39 号)，现标明此产品中可能含有的有毒、有害物质或元素的名称与含量。

- 环保使用期限：**本产品环保使用期限请参照贴在机器上的规格标签上的标识。
- 产品报废后处置提示：**本产品符合国家相关法律法规的要求，当产品报废后，请按当地环保法规要求处置。



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